Allied Vision Prosilica GX

Technical Manual

GigE Vision Cameras

V2.2.0

20 March 2015

Allied Vision Technologies GmbH
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Allied Vision

Legal notice

For customers in the U.S.A.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interferences will not occur in a particular installation. If the equipment does cause harmful interference to radio or television reception, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the distance between the equipment and the receiver.
- Use a different line outlet for the receiver.
- Consult a radio or TV technician for help.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment. The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a computing device pursuant to Subpart A of Part 15 of FCC Rules.

For customers in Canada

This apparatus complies with the Class A limits for radio noise emissions set out in the Radio Interference Regulations.

Pour utilisateurs au Canada

Cet appareil est conforme aux normes classe A pour bruits radioélectriques, spécifiées dans le Règlement sur le brouillage radioélectrique.

Life support applications

These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Allied Vision Technologies customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Allied Vision Technologies for any damages resulting from such improper use or sale.

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The information provided by Allied Vision Technologies is supplied without any guarantees or warranty whatsoever, be it specific or implicit. Also, excluded are all implicit warranties concerning the negotiability, the suitability for specific applications or the non-breaking of laws and patents. Even if we assume that the information supplied to us is accurate, errors and inaccuracy may still occur.

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Allied Vision Technologies GmbH 03/2015

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Allied Vision

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Contacting Allied Vision

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Introduction

This **Prosilica GX Technical Manual** describes in depth the technical specifications of the Prosilica GX camera family including dimensions, feature overview, I/O definition, trigger timing waveforms, and frame rate performance.

For information on software installation read the **GigE Installation Manual**. For detailed information on camera features and controls specific to the Prosilica GX refer to the **GigE Features Reference** and **GigE Camera and Driver Attributes** documents.

www

Prosilica GX literature:
http://www.alliedvision.com/en/support/technical-documentation/prosilica-gx-documentation

Document history

Version	Date	Remarks
V2.0.0	2011-Jul-14	New Manual - SERIAL status
V2.0.1	2011-Dec-06	Added GX2750 model information – Specifications – Mechanicals – Region of interest performance
V2.0.2	2011-Dec-22	Added GX6600 model information – Specifications – Mechanicals
V2.0.3	2012-Feb-27	Added GX6600 frame rate charts
V2.0.4	2013-Jan-30	• Renamed Camera IO signals • Reworked cleaning optics section • Reworked the camera spectral plots and Framerate vs. Height graphs • Removed the camera internal circuit diagram • Removed the camera external circuit example diagram
to be continued on next page		

Table 1: Document history

Version	Date	Remarks
		continued from last page
V2.0.5	2013-Jun-06	• Updated the RoHS directive • Added Status LEDs section • Updated bit depth and exposure control values in the Specifications chapter • Updated the pixel format naming according to the GenICam standard • Added frame rate vs. height graphs for 2 Byte pixel format and bandwidth limiting information in Resolution and ROI frame rates on page 52 • Added VIMBA SDK link in Additional references section • Updated AVT recommended cabling to Category 6 or higher in the Gigabit Ethernet port section
V2.0.6	2013-Jul-05	• Added contact information for Allied Vision Technologies (Shanghai) Co. Ltd. • Updated spectral plots for GX1910 on page 18 • Updated the links to **AVT GigE Installation Manual** • Added links to **AVT GigE Camera and Driver Features** document
V2.0.7	2013-Oct-02	• Added a note on locking screw cables on page 41 • Added optical flange focal distance and maximum lens protrusion information on page 37 • Added Additional references on page 74 • Updated the Cleaning optics section • Added frame rate tables in chapter Resolution and ROI frame rates on page 52 • Updated table 10 on page 29 • Updated links to AVT PvAPI SDK
V2.0.8	2013-Nov-26	• Added Prosilica GX model comparison for Single and Dual GigE port (16 bit) operation on page 71 • Updated Index • Added chapter Description of the data path on page 72 • Updated spectral sensitivity plots in chapter Specifications on page 13
V2.1.0	2015-Mar-10	• Updated Allied Vision logo • Changed AVT and Allied Vision Technologies references to Allied Vision • Updated Prosilica GX3300/3300C specifications, spectral plots on page 26, and ROI height vs frame rate information page 66 • Replaced the optical flange focal distance section with the following sections: – C-Mount flange focal distance – F-Mount flange focal distance • Updated exposure control values in Specifications chapter

Table 1: Document history

Version	Date	Remarks
V2.1.0 [Continued]	2015-Mar-10 [Continued]	• Updated orientation of the connector diagram on page 42 • Renamed Truesense references to OnSemi • Updated datapath diagram for Prosilica GX: color cameras
V2.2.0	2015-Mar-20	• Replaced old links with new Allied Vision website links • Changed file name from 'GigE Camera and Driver Features' to 'GigE Features Reference' • Changed chapter name from 'Description of data path' to 'Camera data path'

Table 1: Document history

Manual conventions

To give this manual an easily understood layout and to emphasize important information, the following typographical styles and symbols are used:

Styles

Style	Function	Example
Bold	Programs, inputs, or highlighting important information	**bold**
Courier	Code listings etc.	Input
Upper case	Register	REGISTER
Italics	Modes, fields	*Mode*
Parentheses and/or blue	Links	(Link)

Symbols

Note This symbol highlights important information.

Caution This symbol highlights important instructions. You have to follow these instructions to avoid malfunctions.

www

This symbol highlights URLs for further information. The URL itself is shown in blue.

Example:

http://www.alliedvision.com

Precautions

Caution

Do not disassemble the camera housing. Warranty is void if camera has been disassembled.

This camera contains sensitive internal components.

Caution

Keep shipping material.

Poor packaging of the product may cause damage during shipping.

Caution

Verify all external connections.

Verify all external connections in terms of voltage levels, power requirements, voltage polarity, and signal integrity prior to powering the device.

Caution

Cleaning.

This product can be damaged by some volatile cleaning agents. Avoid cleaning the image sensor unless absolutely necessary. Please see instructions on optics cleaning in this document.

Caution

Do not exceed environmental specifications.

See environmental specifications limits in the Specifications section of this document. Special care must be taken to maintain a reasonable operating temperature. If the camera is operated in temperatures higher than the specified range, the camera should be mounted on a heat sink.

Cleaning optics

Caution

Allied Vision does not warranty against any physical damage to the sensor/filter/protection glass or lenses. **Use utmost care when cleaning optical components**.

Caution

Do not touch any optics with fingers. Oil from fingers can damage fragile optical coatings.

Identifying debris

Debris on the image sensor or optical components appears as a darkened area or smudge on a camera image. Do not confuse this with a pixel defect which appears as a distinct point.

Locating debris

First determine whether the debris is on the sensor glass, IR filter (if used), or lens. The farther away the debris is from the sensor, the blurrier the debris appears on a camera image.

Stream a live image from the camera using a uniform target, such as a piece of paper. To determine if the debris is on the camera lens, rotate the lens independent of the camera. If the spot moves, the debris is on the lens. Otherwise, the debris is on the IR filter (if used) or the sensor glass.

Color cameras with IR filter

Prosilica GX color cameras are equipped with an IR filter. With no lens or lens cap on a camera, the IR filter is exposed and debris can accumulate on it. This is the most probable location for debris. It should not be necessary to remove the IR filter for cleaning. Clean the outside of the IR filter glass using the techniques explained in the next section.

If it is determined that the debris is on the inside surface of the filter glass, or on the sensor glass, IR filter removal is necessary. Depending on the manufacturing date of your Prosilica GX camera, the IR filter may be slot type, or pinhole type. Slot type filters can be removed using a small flat head screw driver. Pinhole type filters require a pin spanner wrench for removal.

Note

A pin spanner wrench suitable for IR filter removal is available for purchase from Allied Vision.
P/N: E9020001

Cleaning with air

Blow directly on the contaminated surface with moderate pressure, clean compressed air.

Caution

Do not exceed 6 bar (90 psi). If using canned air, approximately ~ 4.8 bar (70 psi) when full, do not shake or tilt the can, as extreme changes in temperature due to sudden cold air can crack the optic glass.

View a live image with the camera after blowing. If debris is still present, repeat the process until it is determined that the particulate cannot be dislodged. If this is the case, proceed to the contact cleaning technique.

Contact cleaning

Only use this method if the above air cleaning method does not sufficiently clean the surface. Use 99% pure isopropyl alcohol and clean cotton swabs. Wet the swab in the alcohol. Quickly wipe the optics in a single stroke. Prolonged exposure of alcohol on the swab can cause the swab glue to loosen and transfer to the optic glass. Do not reuse the same swab. Repeat this process until the debris is removed. If this process fails to remove the debris, contact Allied Vision.

Conformity

Allied Vision Technologies declares under its sole responsibility that all standard cameras of the **Allied Vision Prosilica GX** family, to which this declaration relates, are in conformity with the following standard(s) or other normative document(s):

- CE, following the provisions of 2004/108/EG directive
- FCC Part 15 Class A
- RoHS (2011/65/EU)

CE

We declare, under our sole responsibility, that the previously described **Allied Vision Prosilica GX** cameras conform to the directives of the CE.

FC

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential environment. This equipment generates radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Any modifications not expressly approved in this manual may void your authority to operate this equipment.

Specifications

Prosilica GX1050/1050C

Feature	Specification
Resolution	1024 x 1024
Sensor	OnSemi KAI-01050
Type	CCD Progressive
Sensor size	Type 1/2
Cell size	5.5 µm
Lens mount	C (adjustable)
Max frame rate at full resolution	109 fps (1 port) - 112 fps (2 ports)
A/D	14 bit
On-board FIFO	128 MB
Bit depth	Monochrome cameras: 14 bit Color cameras: 12 bit
Mono formats	GX1050: Mono8, Mono12, Mono12Packed, Mono14 GX1050C: Mono8
Color formats	BayerGR8, BayerGR12, BayerGR12Packed, RGB8Packed, BGR8Packed, RGBA8Packed, BGRA8Packed, RGB12Packed, YUV411Packed
Exposure control	10 µs to 60 s; 1 µs increments
Gain control	0 to 34 dB
Horizontal binning	1 to 8 columns
Vertical binning	1 to 8 rows
Opto-coupled I/Os	2 input, 4 output
RS-232	1
Voltage requirements	5–24 VDC
Power consumption	5.4 W (1 port) – 6.7 W (2 ports)
Mass	269 g
Body dimensions (L x W x H)	107.2 x 53.3 x 33 mm (including connectors, w/o tripod and lens)
Operating temperature	0 to +50 °C ambient temperature (without condensation)
Storage temperature	-10 to +70 °C ambient temperature (without condensation)
Trigger latency	1.5 µs
Trigger jitter	±0.5 µs
Operating humidity	20 to 80% non-condensing
Hardware interface standard	IEEE 802.3 1000BASE-T, 100BASE-TX
Software interface standard	GigE Vision Standard 1.2
Regulatory	CE, FCC Class A, RoHS (2011/65/EU)

Table 2: Prosilica GX1050/1050C camera specifications

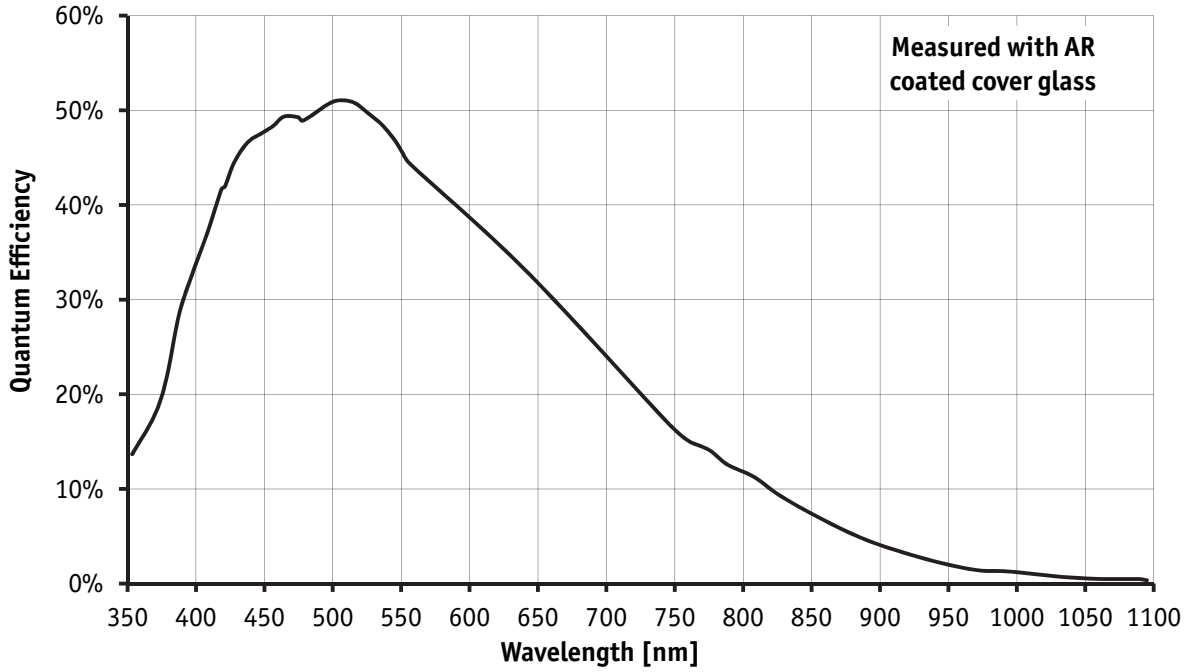


Figure 1: Prosilica GX1050 monochrome spectral response

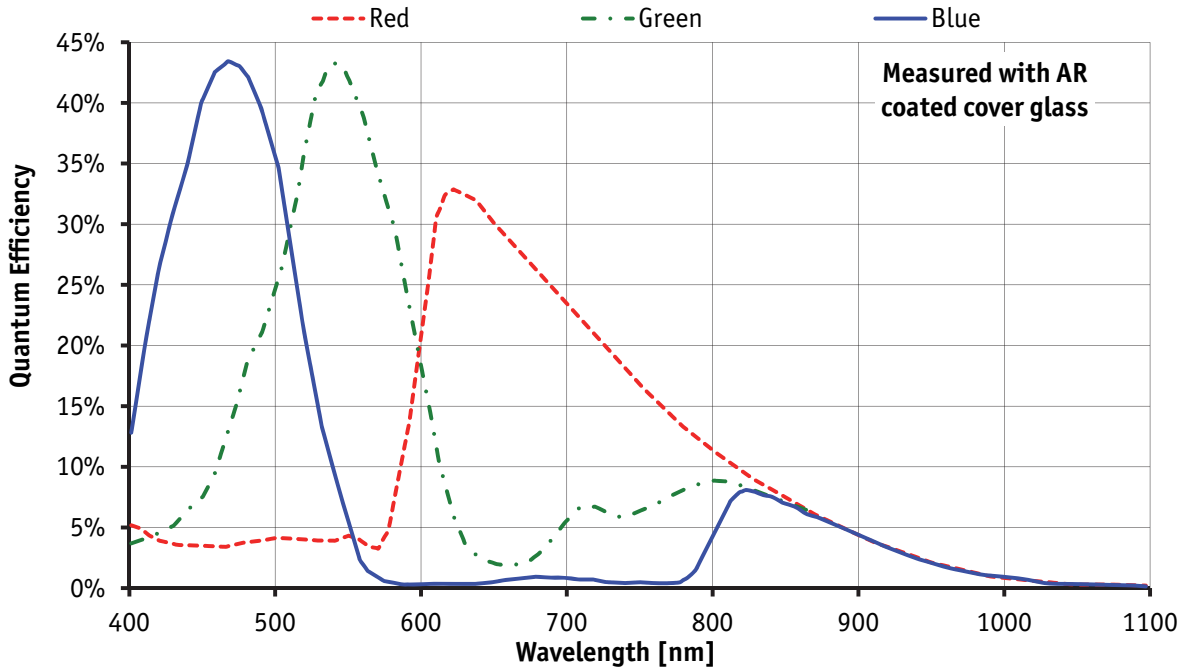


Figure 2: Prosilica GX1050C color spectral response (without IR cut filter)

Prosilica GX1660/1660C

Feature	Specification
Resolution	1600 x 1200
Sensor	OnSemi KAI-02050
Type	CCD Progressive
Sensor size	Type 2/3
Cell size	5.5 µm
Lens mount	C (adjustable)
Max frame rate at full resolution	60 fps (1 port) - 66 fps (2 ports)
A/D	14 bit
On-board FIFO	128 MB
Bit depth	Monochrome cameras: 14 bit Color cameras: 12 bit
Mono formats	GX1660: Mono8, Mono12, Mono12Packed, Mono14 GX1660C: Mono8
Color formats	BayerGR8, BayerGR12, BayerGR12Packed, RGB8Packed, BGR8Packed, RGBA8Packed, BGRA8Packed, RGB12Packed, YUV411Packed
Exposure control	10 µs to 60 s; 1 µs increments
Gain control	0 to 34 dB
Horizontal binning	1 to 8 columns
Vertical binning	1 to 8 rows
Opto-coupled I/Os	2 input, 4 output
RS-232	1
Voltage requirements	5–24 VDC
Power consumption	5.6 W (1 port) – 6.7 W (2 ports)
Mass	269 g
Body dimensions (L x W x H)	107.2 x 53.3 x 33 mm (including connectors, w/o tripod and lens)
Operating temperature	0 to +50 °C ambient temperature (without condensation)
Storage temperature	-10 to +70 °C ambient temperature (without condensation)
Trigger latency	1.5 µs
Trigger jitter	±0.5 µs
Operating humidity	20 to 80% non-condensing
Hardware interface standard	IEEE 802.3 1000BASE-T, 100BASE-TX
Software interface standard	GigE Vision Standard 1.2
Regulatory	CE, FCC Class A, RoHS (2011/65/EU)

Table 3: Prosilica GX1660/1660C camera specifications

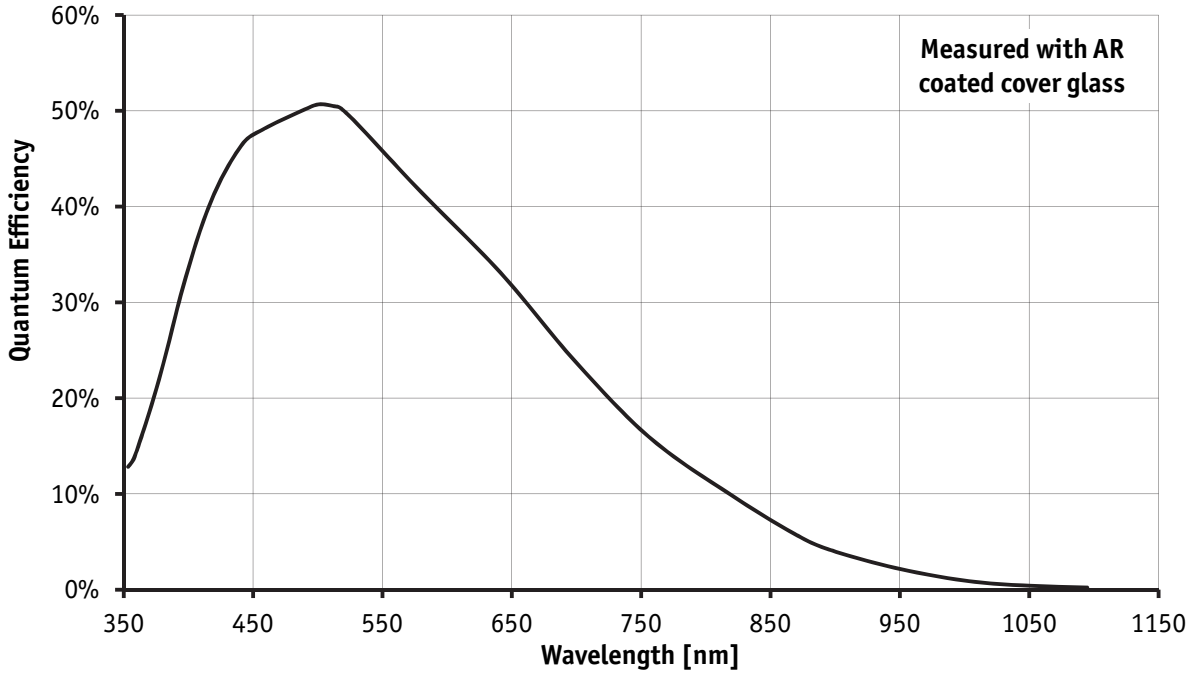


Figure 3: Prosilica GX1660 monochrome spectral response

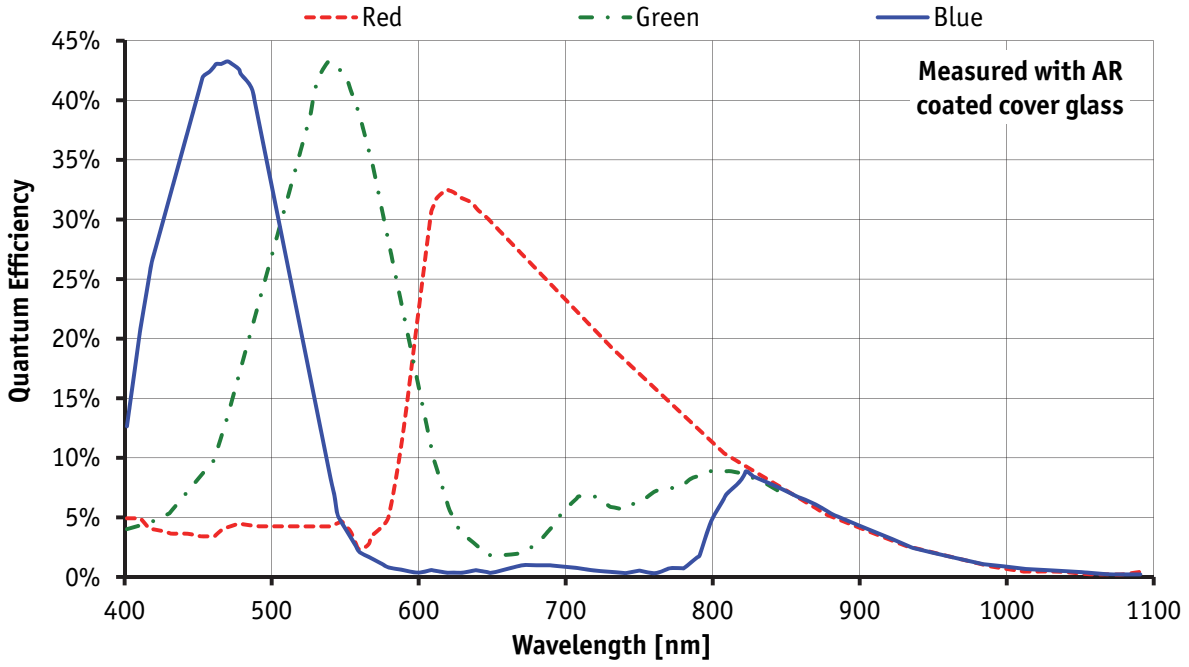


Figure 4: Prosilica GX1660C color spectral response (without IR cut filter)

Prosilica GX1910/1910C

Feature	Specification
Resolution	1920 x 1080
Sensor	OnSemi KAI-02150
Type	CCD Progressive
Sensor size	Type 2/3
Cell size	5.5 µm
Lens mount	C (adjustable)
Max frame rate at full resolution	55 fps (1 port) - 63 fps (2 ports)
A/D	14 bit
On-board FIFO	128 MB
Bit depth	Monochrome cameras: 14 bit Color cameras: 12 bit
Mono formats	GX1910: Mono8, Mono12, Mono12Packed, Mono14 GX1910C: Mono8
Color formats	BayerGR8, BayerGR12, BayerGR12Packed, RGB8Packed, BGR8Packed, RGBA8Packed, BGRA8Packed, RGB12Packed, YUV411Packed
Exposure control	10 µs to 60 s; 1 µs increments
Gain control	0 to 34 dB
Horizontal binning	1 to 8 columns
Vertical binning	1 to 8 rows
Opto-coupled I/Os	2 input, 4 output
RS-232	1
Voltage requirements	5–24 VDC
Power consumption	5.6 W (1 port) – 6.7 W (2 ports)
Mass	269 g
Body dimensions (L x W x H)	107.2 x 53.3 x 33 mm (including connectors, w/o tripod and lens)
Operating temperature	0 to +50 °C ambient temperature (without condensation)
Storage temperature	-10 to +70 °C ambient temperature (without condensation)
Trigger latency	1.5 µs
Trigger jitter	±0.5 µs
Operating humidity	20 to 80% non-condensing
Hardware interface standard	IEEE 802.3 1000BASE-T, 100BASE-TX
Software interface standard	GigE Vision Standard 1.2
Regulatory	CE, FCC Class A, RoHS (2011/65/EU)

Table 4: Prosilica GX1910/1910C camera specifications

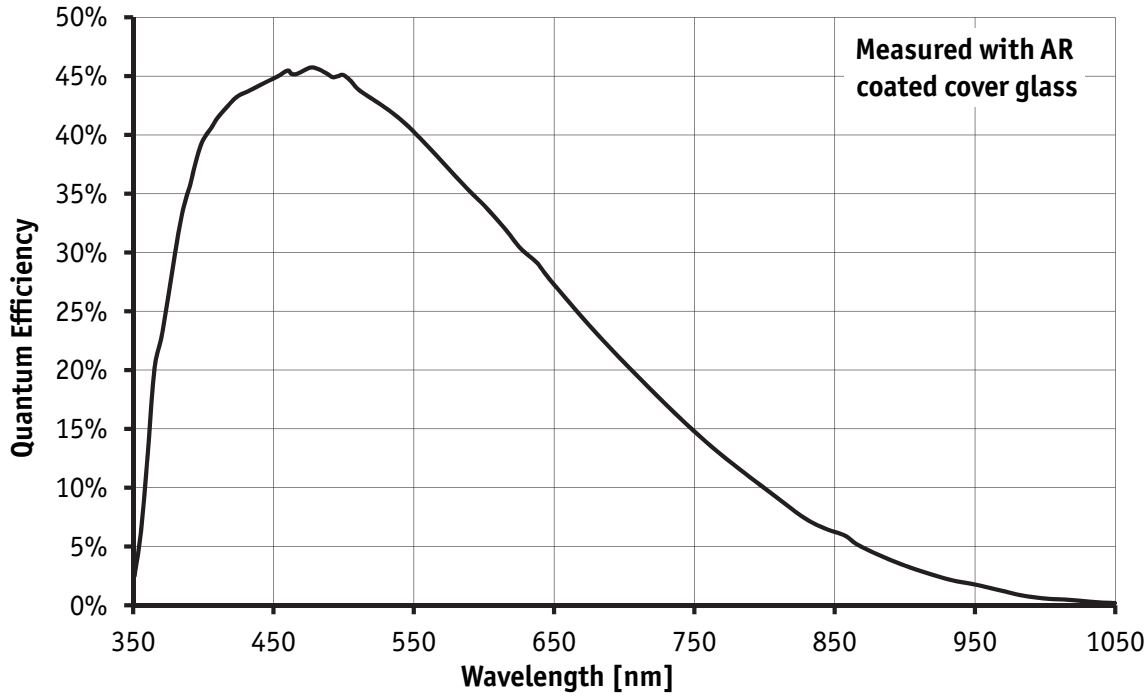


Figure 5: Prosilica GX1910 monochrome spectral response

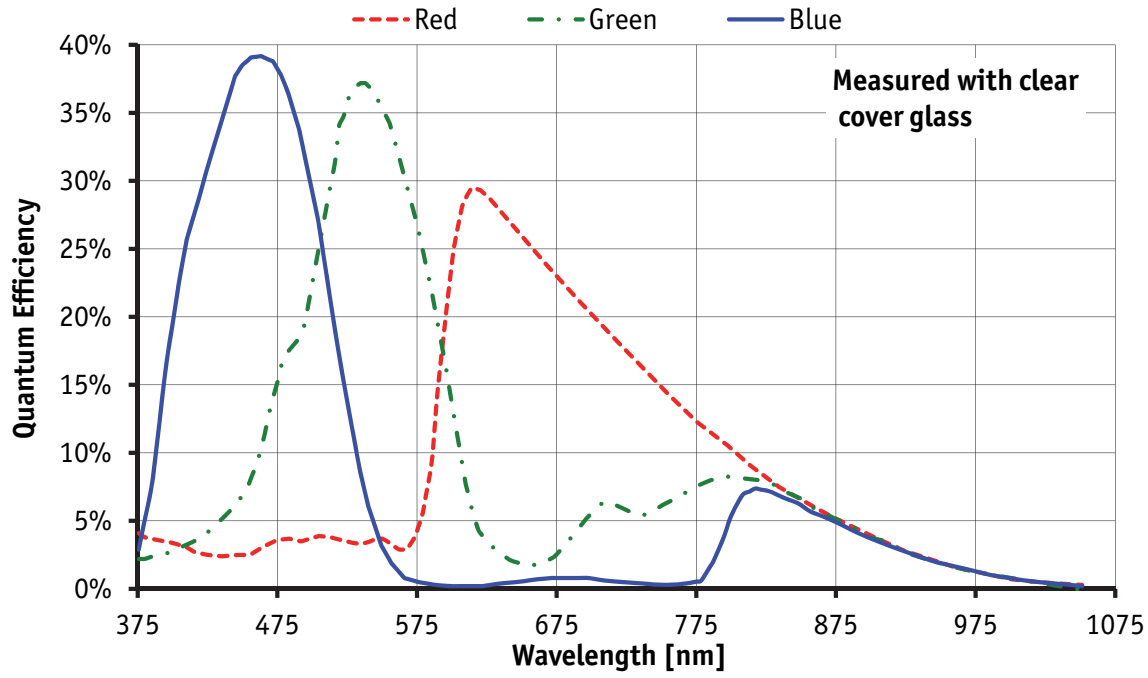


Figure 6: Prosilica GX1910 color spectral response (without IR cut filter)

Prosilica GX1920/1920C

Feature	Specification
Resolution	1936 x 1456
Sensor	Sony ICX674
Type	CCD Progressive
Sensor size	Type 2/3
Cell size	4.54 µm
Lens mount	C (adjustable)
Max frame rate at full resolution	40 fps
A/D	14 bit
On-board FIFO	128 MB
Bit depth	Monochrome cameras: 14 bit Color cameras: 12 bit
Mono formats	GX1920: Mono8, Mono12, Mono12Packed, Mono14 GX1920C: Mono8
Color formats	BayerRG8, BayerRG12, BayerGR12Packed, RGB8Packed, BGR8Packed, RGBA8Packed, BGRA8Packed, YUV411Packed
Exposure control	10 µs to 60 s; 1 µs increments
Gain control	0 to 24 dB
Horizontal binning	1 to 8 columns
Vertical binning	1 to 8 rows
Opto-coupled I/Os	2 input, 4 output
RS-232	1
Voltage requirements	5–24 VDC
Power consumption	5.3 W (1 port) – 6.2 W (2 ports)
Mass	269 g
Body dimensions (L x W x H)	108.1 x 53.3 x 33 mm (including connectors, w/o tripod and lens)
Operating temperature	0 to +50 °C ambient temperature (without condensation)
Storage temperature	-10 to +70 °C ambient temperature (without condensation)
Trigger latency	1.5 µs
Trigger jitter	±0.5 µs
Operating humidity	20 to 80% non-condensing
Hardware interface standard	IEEE 802.3 1000BASE-T, 100BASE-TX
Software interface standard	GigE Vision Standard 1.2
Regulatory	CE, FCC Class A, RoHS (2011/65/EU)

Table 5: Prosilica GX1920/1920C camera specifications

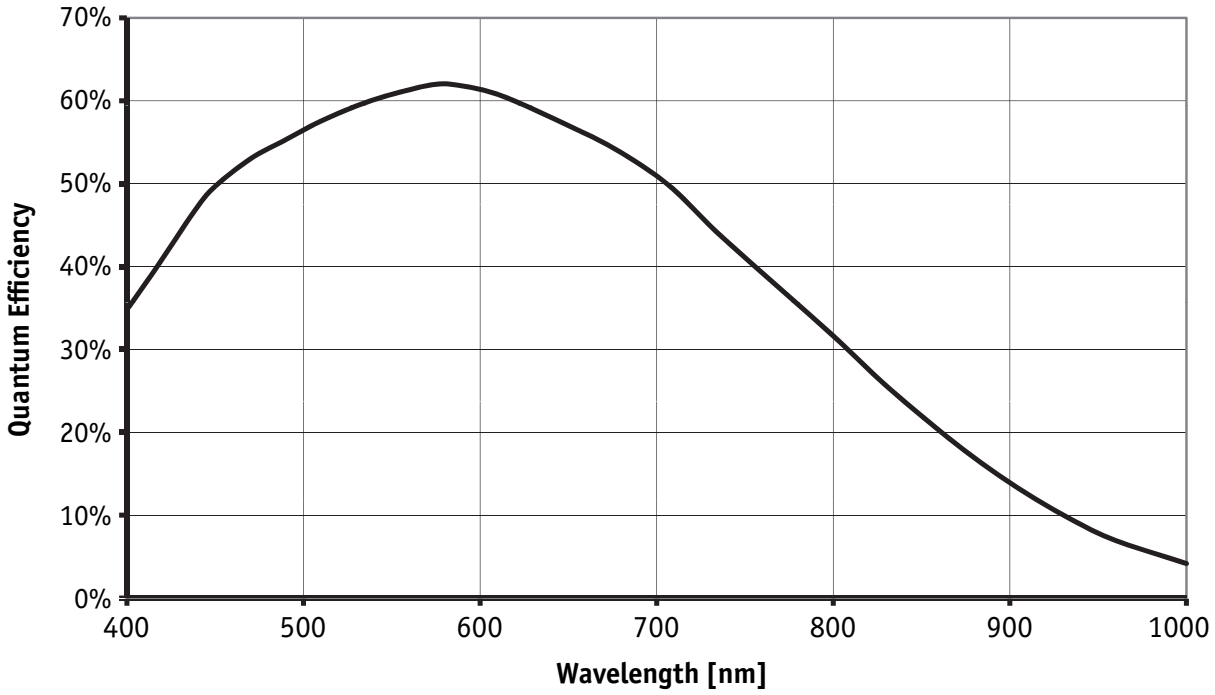


Figure 7: Prosilica GX1920 monochrome spectral response

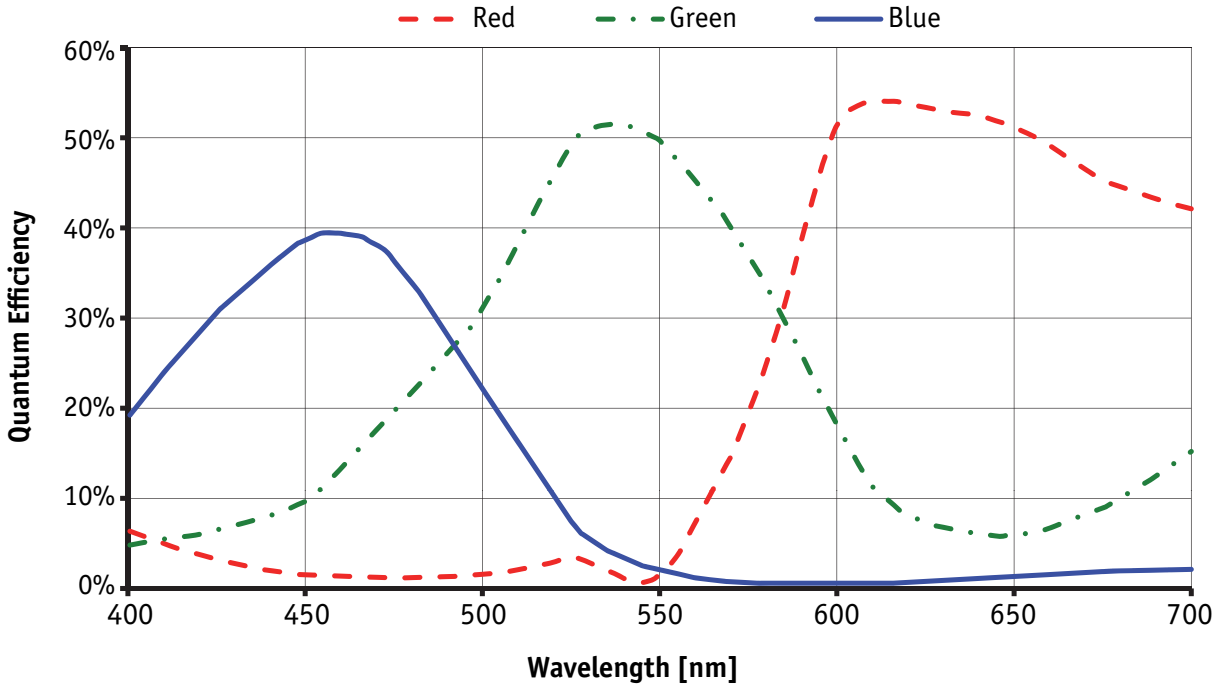


Figure 8: Prosilica GX1920C color spectral response (without IR cut filter)

Prosilica GX2300/2300C

Feature	Specification
Resolution	2336 x 1752
Sensor	OnSemi KAI-04050
Type	CCD Progressive
Sensor size	Type 1
Cell size	5.5 µm
Lens mount	C (adjustable) / F
Max frame rate at full resolution	28 fps (1 port) - 32 fps (2 ports)
A/D	14 bit
On-board FIFO	128 MB
Bit depth	Monochrome cameras: 14 bit Color cameras: 12 bit
Mono formats	GX2300: Mono8, Mono12, Mono12Packed, Mono14 GX2300C: Mono8
Color formats	BayerGR8, BayerGR12, BayerGR12Packed, RGB8Packed, BGR8Packed, RGBA8Packed, BGRA8Packed, RGB12Packed, YUV411Packed
Exposure control	10 µs to 60 s; 1 µs increments
Gain control	0 to 34 dB
Horizontal binning	1 to 8 columns
Vertical binning	1 to 8 rows
Opto-coupled I/Os	2 input, 4 output
RS-232	1
Voltage requirements	5–24 VDC
Power consumption	5.8 W (1 port) – 6.9 W (2 ports)
Mass	269 g
Body dimensions (L x W x H)	107.2 x 53.3 x 33 mm (including connectors, w/o tripod and lens)
Operating temperature	0 to +50 °C ambient temperature (without condensation)
Storage temperature	-10 to +70 °C ambient temperature (without condensation)
Trigger latency	1.5 µs
Trigger jitter	±0.5 µs
Operating humidity	20 to 80% non-condensing
Hardware interface standard	IEEE 802.3 1000BASE-T, 100BASE-TX
Software interface standard	GigE Vision Standard 1.2
Regulatory	CE, FCC Class A, RoHS (2011/65/EU)

Table 6: Prosilica GX2300/2300C camera specifications

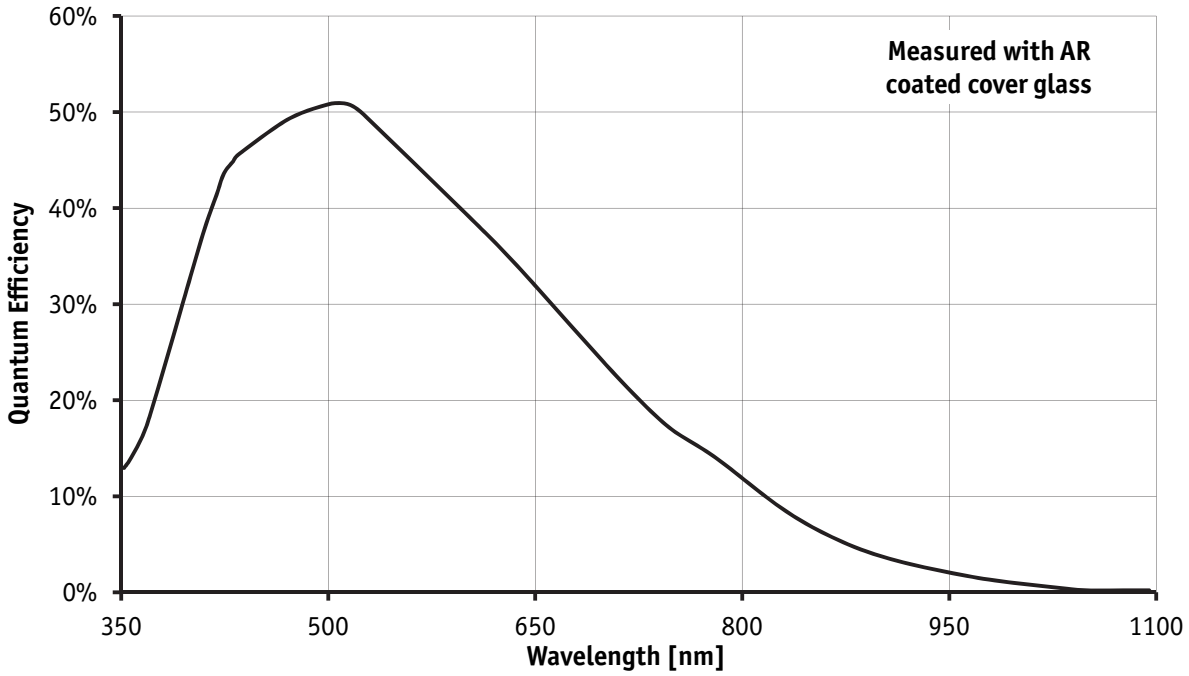


Figure 9: Prosilica GX2300 monochrome spectral response

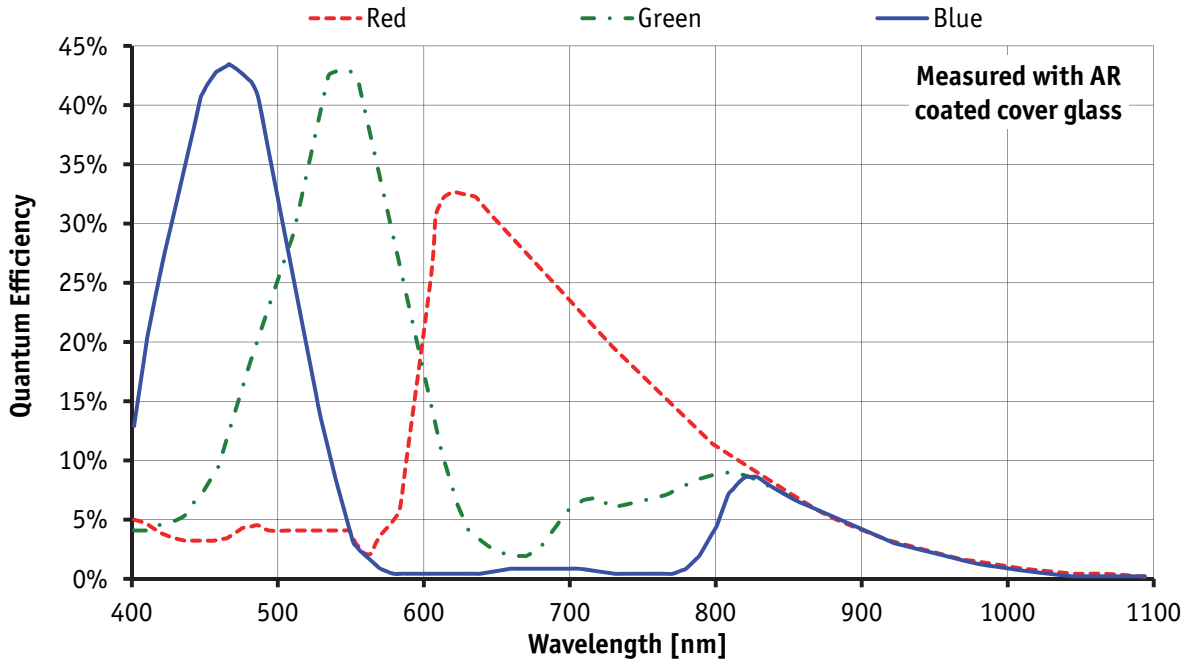


Figure 10: Prosilica GX2300C color spectral response (without IR cut filter)

Prosilica GX2750/2750C

Feature	Specification
Resolution	2750 x 2200
Sensor	Sony ICX694
Type	CCD Progressive
Sensor size	Type 1
Cell size	4.54 µm
Lens mount	C (adjustable)
Max frame rate at full resolution	19 fps (1 port) – 20 fps (2 ports)
A/D	14 bit
On-board FIFO	128 MB
Bit depth	Monochrome cameras: 14 bit Color cameras: 12 bit
Mono formats	GX2750: Mono8, Mono12, Mono12Packed, Mono14 GX2750C: Mono8
Color formats	BayerRG8, BayerRG12, BayerGR12Packed, RGB8Packed, BGR8Packed, RGBA8Packed, BGRA8Packed, YUV411Packed
Exposure control	10 µs to 60 s; 1 µs increments
Gain control	0 to 33 dB
Horizontal binning	1 to 8 columns
Vertical binning	1 to 8 rows
Opto-coupled I/Os	2 input, 4 output
RS-232	1
Voltage requirements	5–24 VDC
Power consumption	6.1 W (1 port) – 7.1 W (2 ports)
Mass	269 g
Body dimensions (L x W x H)	108.1 x 53.3 x 33 mm (including connectors, w/o tripod and lens)
Operating temperature	0 to +50 °C ambient temperature (without condensation)
Storage temperature	-10 to +70 °C ambient temperature (without condensation)
Trigger latency	1.5 µs
Trigger jitter	±0.5 µs
Operating humidity	20 to 80% non-condensing
Hardware interface standard	IEEE 802.3 1000BASE-T, 100BASE-TX
Software interface standard	GigE Vision Standard 1.2
Regulatory	CE, FCC Class A, RoHS (2011/65/EU)

Table 7: Prosilica GX2750/2750C camera specifications

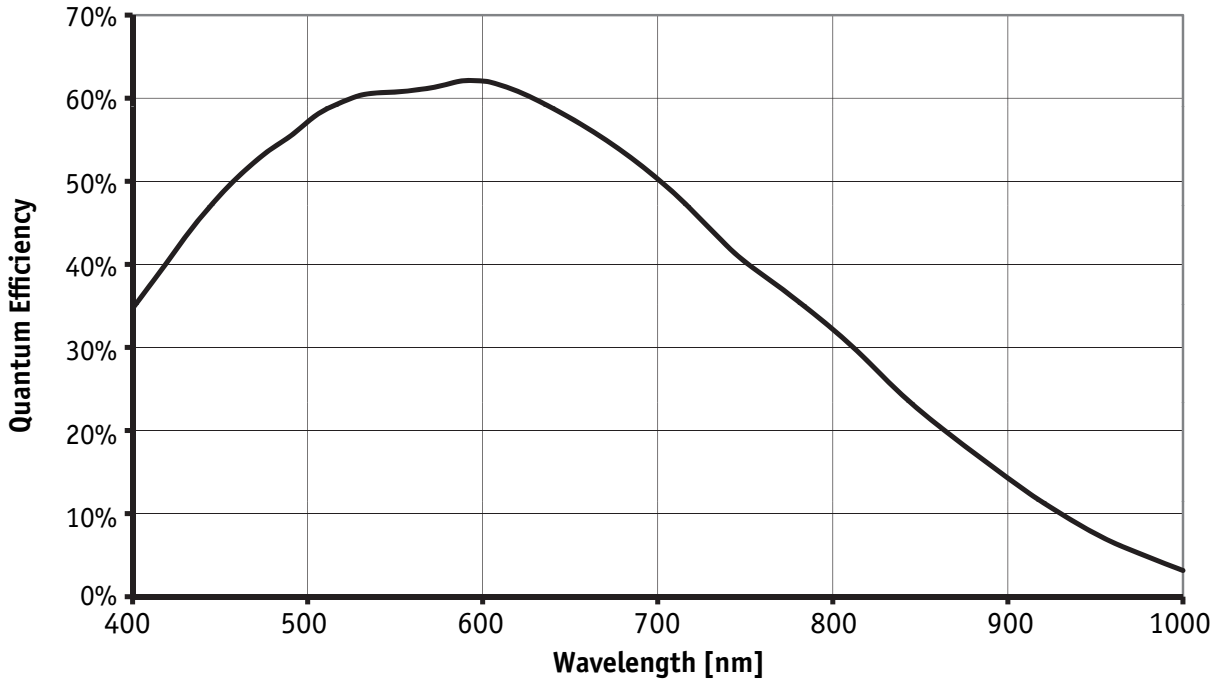


Figure 11: Prosilica GX2750 monocrome spectral response

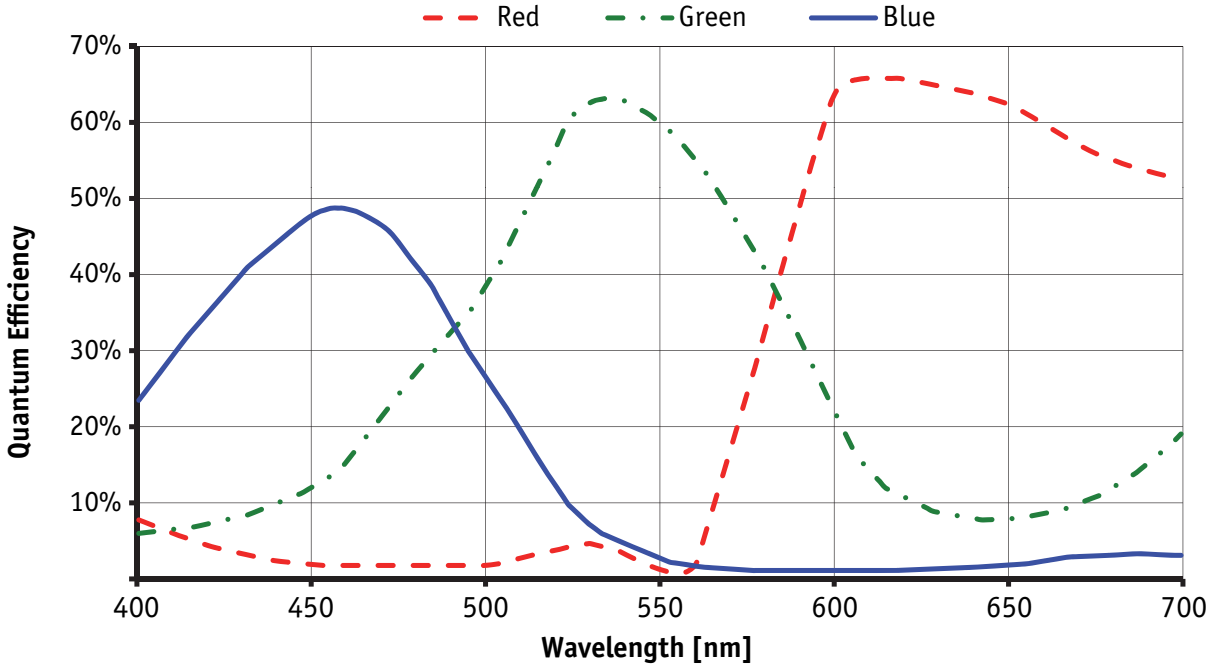


Figure 12: Prosilica GX2750C color spectral response (without IR cut filter)

Prosilica GX3300/3300C

Feature	Specification
Resolution	3296 x 2472
Sensor	Cameras with P/N 02-2408D, 02-2409D: OnSemi KAI-08051 Cameras with P/N 02-2408B, 02-2409B: OnSemi KAI-08050
Type	CCD Progressive
Sensor size	Type 4/3
Cell size	5.5 µm
Lens mount	F
Max frame rate at full resolution	14.7 fps (1 port), 17.1 fps (2 ports)
A/D	14 bit
On-board FIFO	128 MB
Bit depth	Monochrome cameras: 14 bit Color cameras: 12 bit
Mono formats	GX3300: Mono8, Mono12, Mono12Packed, Mono14 GX3300C: Mono8
Color formats	BayerGR8, BayerGR12, BayerGR12Packed, RGB8Packed, BGR8Packed, RGBA8Packed, BGRA8Packed, RGB12Packed, YUV411Packed, YUV422Packed, YUV444Packed
Exposure control	10 µs to 60s; 1 µs increments
Gain control	0 to 34 dB
Horizontal binning	1 to 8 columns
Vertical binning	1 to 8 rows
Opto-coupled I/Os	2 input, 4 output
RS-232	1
Voltage requirements	5–24 VDC
Power consumption	6.1 W (1 port) – 7.2 W (2 ports)
Mass	365 g
Body dimensions (L x W x H)	136.7 x 59.7 x 59.7 mm (including connectors, w/o tripod and lens)
Operating temperature	0 to +50 °C ambient temperature (without condensation)
Storage temperature	-10 to +70 °C ambient temperature (without condensation)
Trigger latency	1.5 µs
Trigger jitter	±0.5 µs
Operating humidity	20 to 80% non-condensing
Hardware interface standard	IEEE 802.3 1000BASE-T, 100BASE-TX
Software interface standard	GigE Vision Standard 1.2
Regulatory	CE, FCC Class A, RoHS (2011/65/EU)

Table 8: Prosilica GX3300/3300C camera specifications

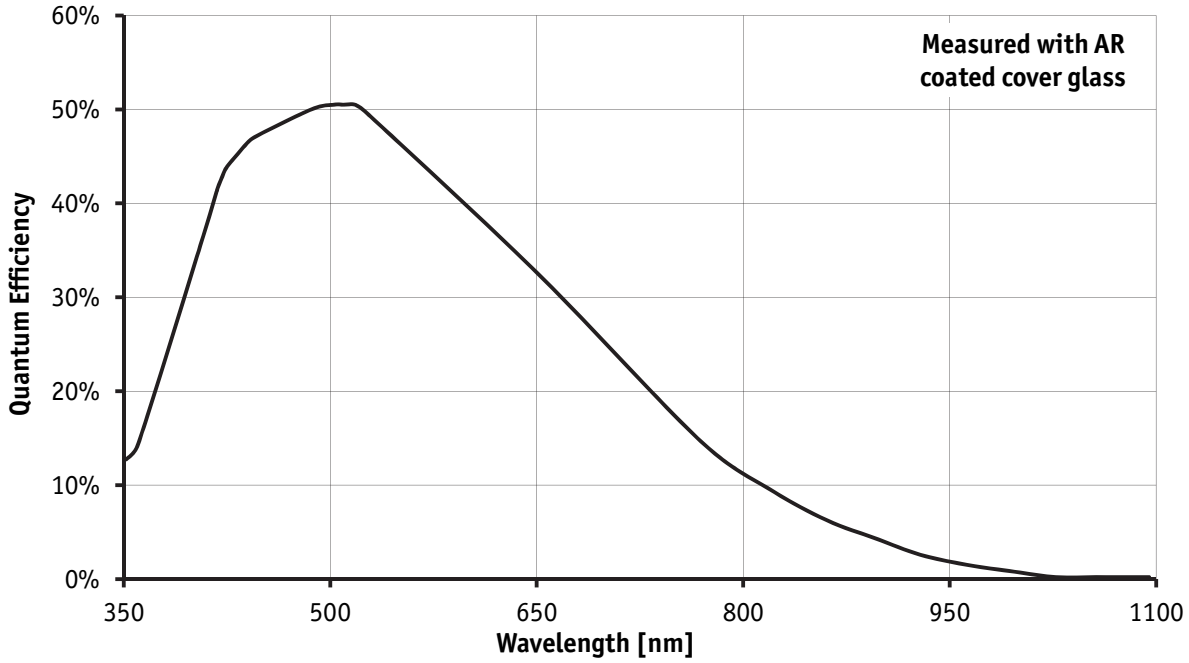


Figure 13: Prosilica GX3300 monochrome spectral response

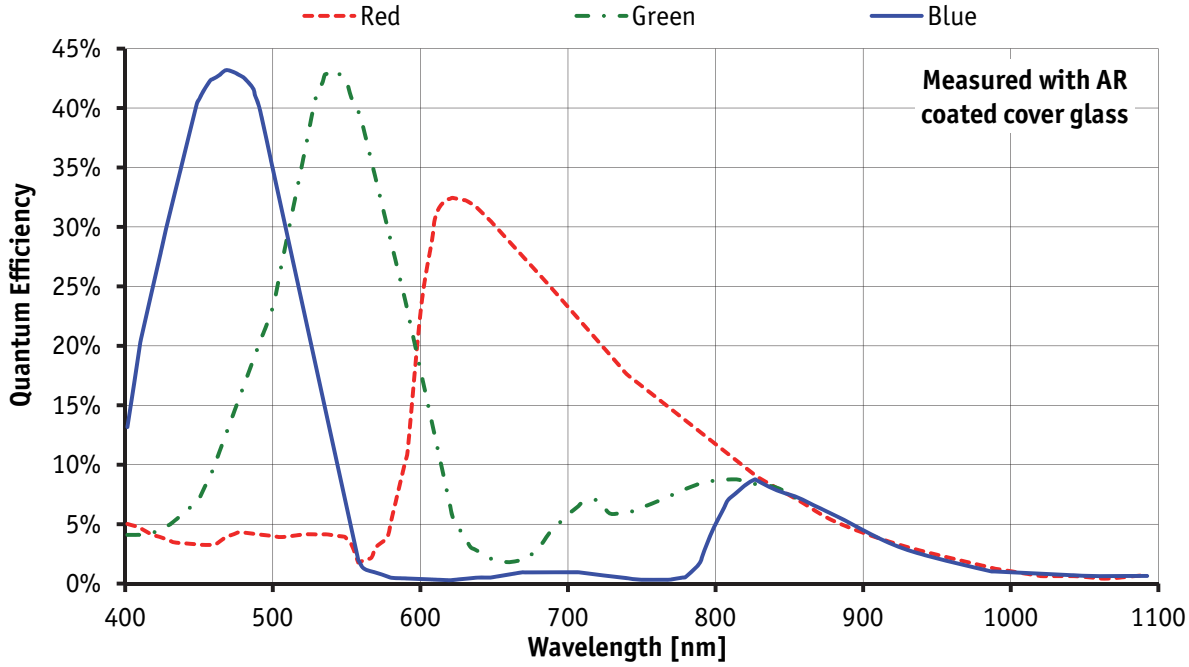


Figure 14: Prosilica GX3300C color spectral response (without IR cut filter)

Prosilica GX6600/6600C

Feature	Specification
Resolution	6576 x 4384
Sensor	OnSemi KAI-29050
Type	CCD Progressive
Sensor size	Type 35 mm
Cell size	5.5 µm
Lens mount	F
Max frame rate at full resolution	4 fps
A/D	14 bit
On-board FIFO	128 MB
Bit depth	Monochrome cameras: 14 bit Color cameras: 12 bit
Mono formats	GX6600: Mono8, Mono12, Mono12Packed, Mono14 GX6600C: Mono8
Color formats	BayerGR8, BayerGR12, BayerGR12Packed, RGB8Packed, BGR8Packed, RGBA8Packed, BGRA8Packed, RGB12Packed, YUV411Packed
Exposure control	30 µs to 60 s; 1 µs increments
Gain control	0 to 34 dB
Horizontal binning	1 to 8 columns
Vertical binning	1 to 8 rows
Opto-coupled I/Os	2 input, 4 output
RS-232	1
Voltage requirements	5–24 VDC
Power consumption	6.7 W (1 port) – 7.6 W (2 ports)
Mass	510 g
Body dimensions (L x W x H)	136.6 x 59.7 x 59.7 mm (including connectors, w/o tripod and lens)
Operating temperature	0 to +50 °C ambient temperature (without condensation)
Storage temperature	-10 to +70 °C ambient temperature (without condensation)
Trigger latency	2.5 µs
Trigger jitter	±0.5 µs
Operating humidity	20 to 80% non-condensing
Hardware interface standard	IEEE 802.3 1000BASE-T, 100BASE-TX
Software interface standard	GigE Vision Standard 1.2
Regulatory	CE, FCC Class A, RoHS (2011/65/EU)

Table 9: Prosilica GX6600/6600C camera specifications

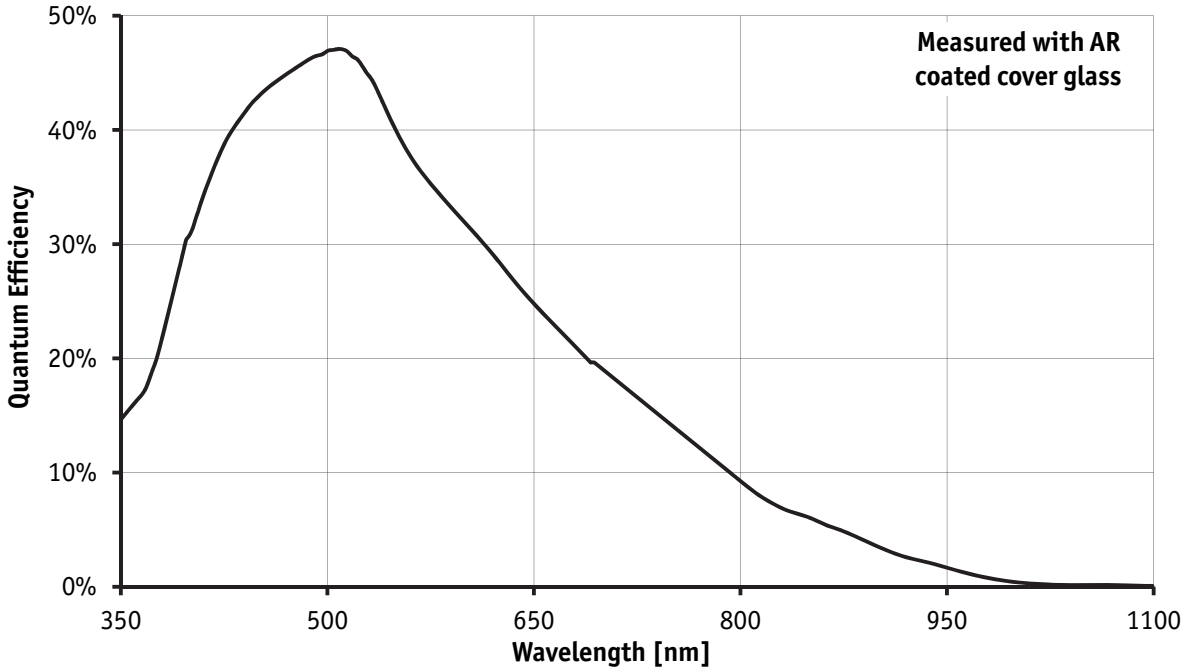


Figure 15: Prosilica GX6600 monochrome spectral response

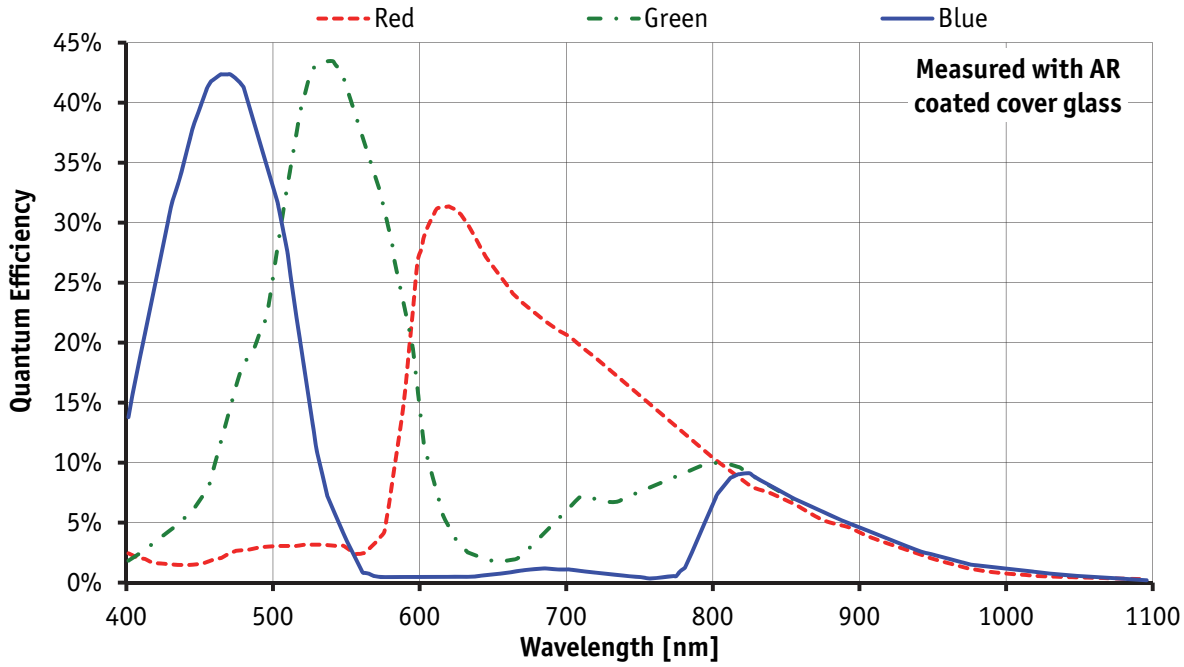


Figure 16: Prosilica GX6600C color spectral response (without IR cut filter)

Camera attribute highlights

Allied Vision cameras support a number of standard and extended features. The table below identifies a selection of interesting capabilities of the Prosilica GX camera family.

www

A complete listing of camera controls, including control definitions can be found online:

PvAPI users: GigE Camera and Driver Attributes document

VIMBA users: GigE Features Reference document

Control	Description
Gain control	Manual and auto
Exposure control	Manual and auto
White balance	Red and blue channel; manual and auto control
External trigger event	Rising edge, falling edge, any edge, level high, level low
External trigger delay	0 to 60* s; 1 µs increments
Fixed rate control	0.001 fps to maximum frame rate
Imaging modes	Free-running, external trigger, fixed rate, software trigger
Sync out modes	Trigger ready, trigger input, exposing, readout, imaging, strobe, GPO
Region of interest	Independent x and y control with 1 pixel resolution
Multicast	Streaming to multiple computers
Event channel	In-camera events including exposure start and trigger are asynchronously broadcasted to the host computer
Chunk data	Captured images are bundled with attribute information such as exposure and gain value
*May vary depending on the camera model	

Table 10: Prosilica GX camera and driver attribute highlights

Filters

All Prosilica GX color models are equipped with an infrared block filter (IR filter). This filter is employed to prevent infrared wavelength photons from passing to the sensor. In the absence of IR filter, images are dominated by red and incapable of being properly color balanced. Monochrome cameras do not employ an IR filter.

The figure below shows the filter transmission response for the IRC30 filter employed in the Prosilica GX cameras.

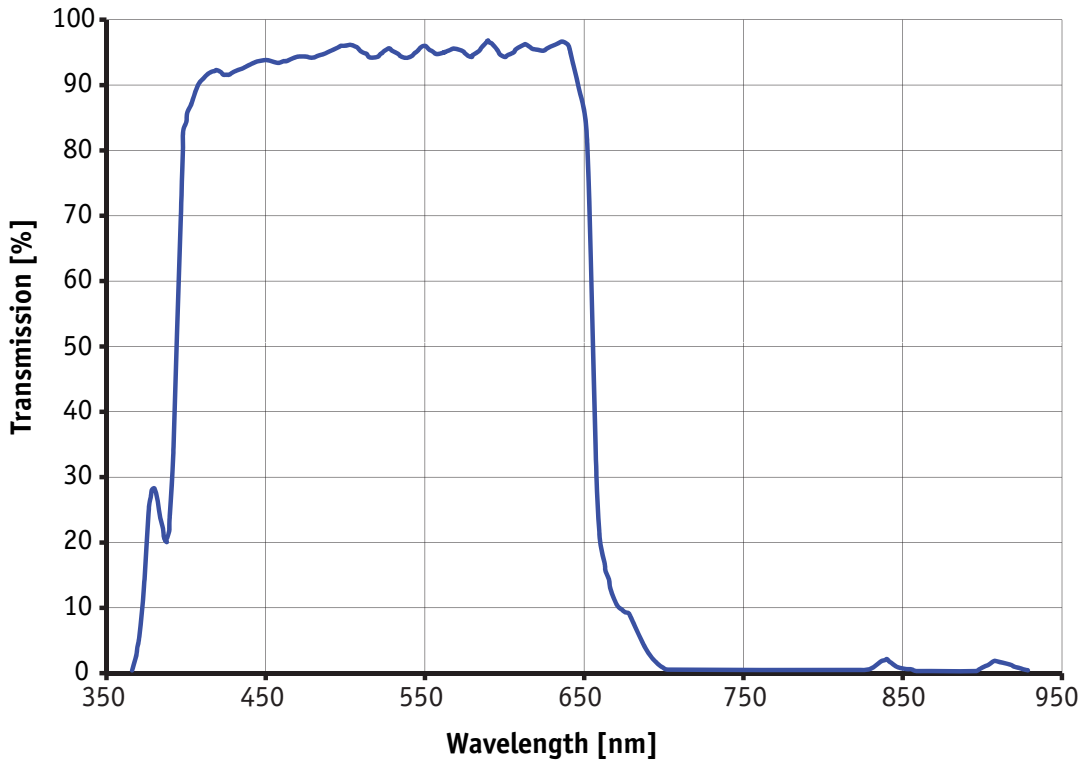


Figure 17: IRC30 filter transmission response

Camera dimensions

The Prosilica GX family supports a range of sensor configurations. The mechanical drawings in this section reflect the following configurations:

- C-Mount (adjustable)
- F-Mount
- GX1920 and GX2750

Prosilica GX C-Mount: GX1050, GX1660, GX1910, GX2300

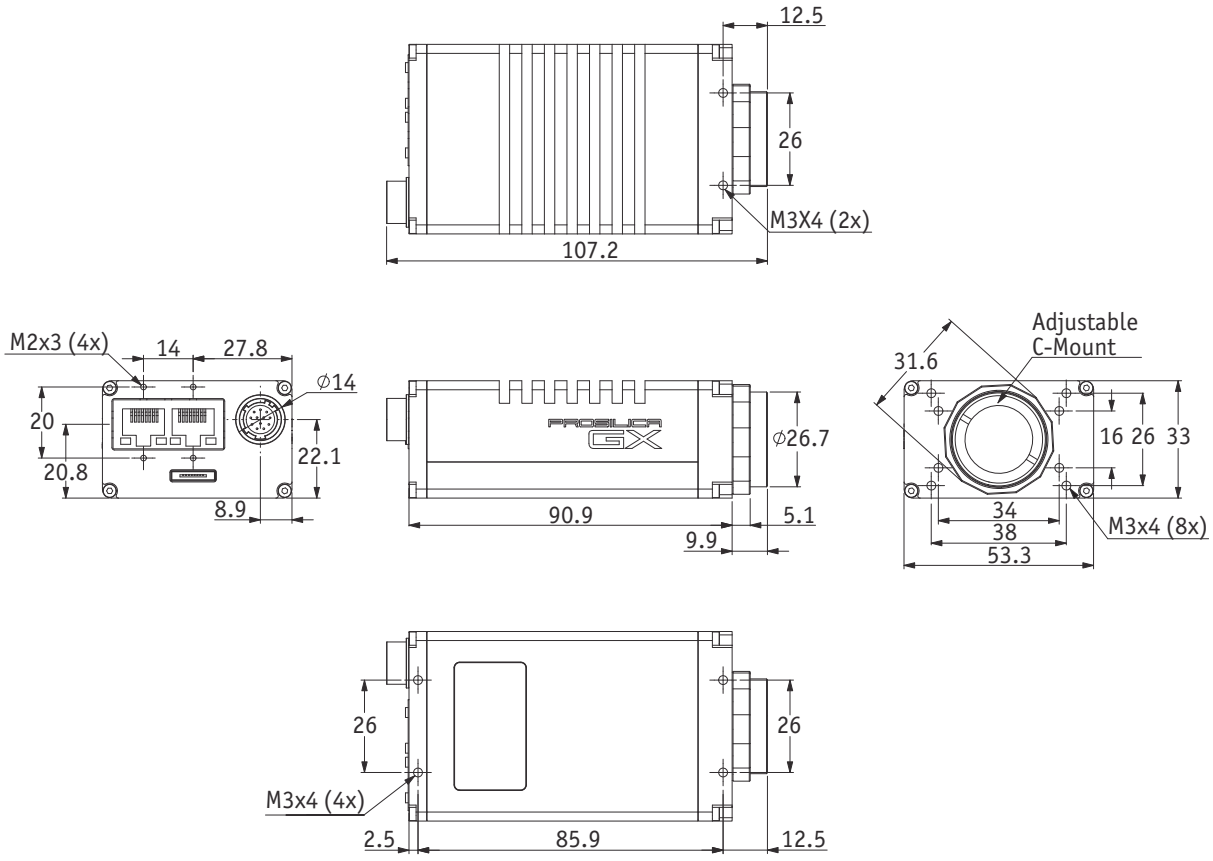


Figure 18: Prosilica GX adjustable C-Mount mechanical dimensions

Prosilica GX F-Mount: GX2300, GX3300

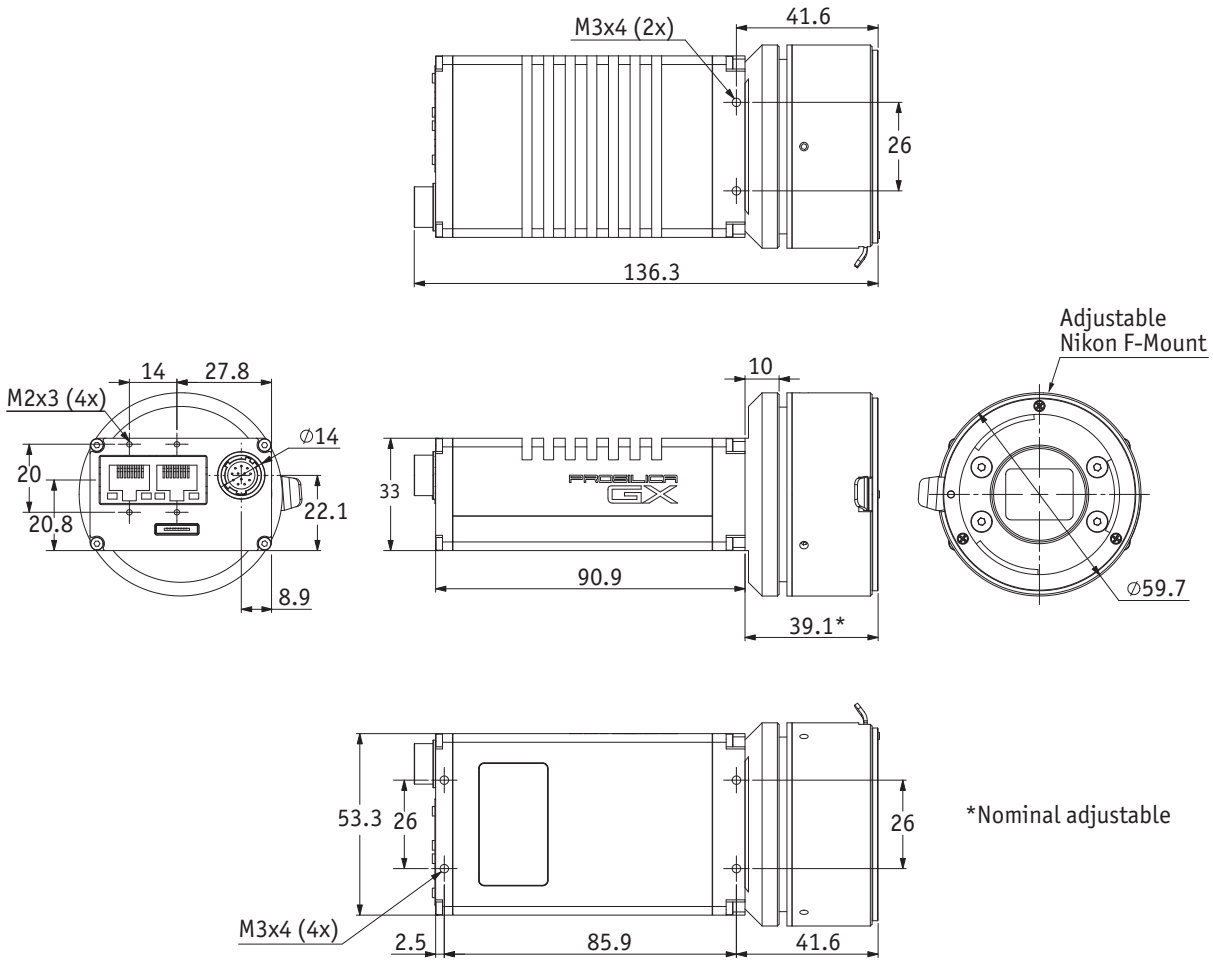


Figure 19: Prosilica GX F-Mount mechanical dimensions

Note

Prosilica GX cameras are shipped with an adjustable C-Mount or F-Mount. The camera can also be built with a CS-Mount upon request.

Prosilica GX1920 and GX2750

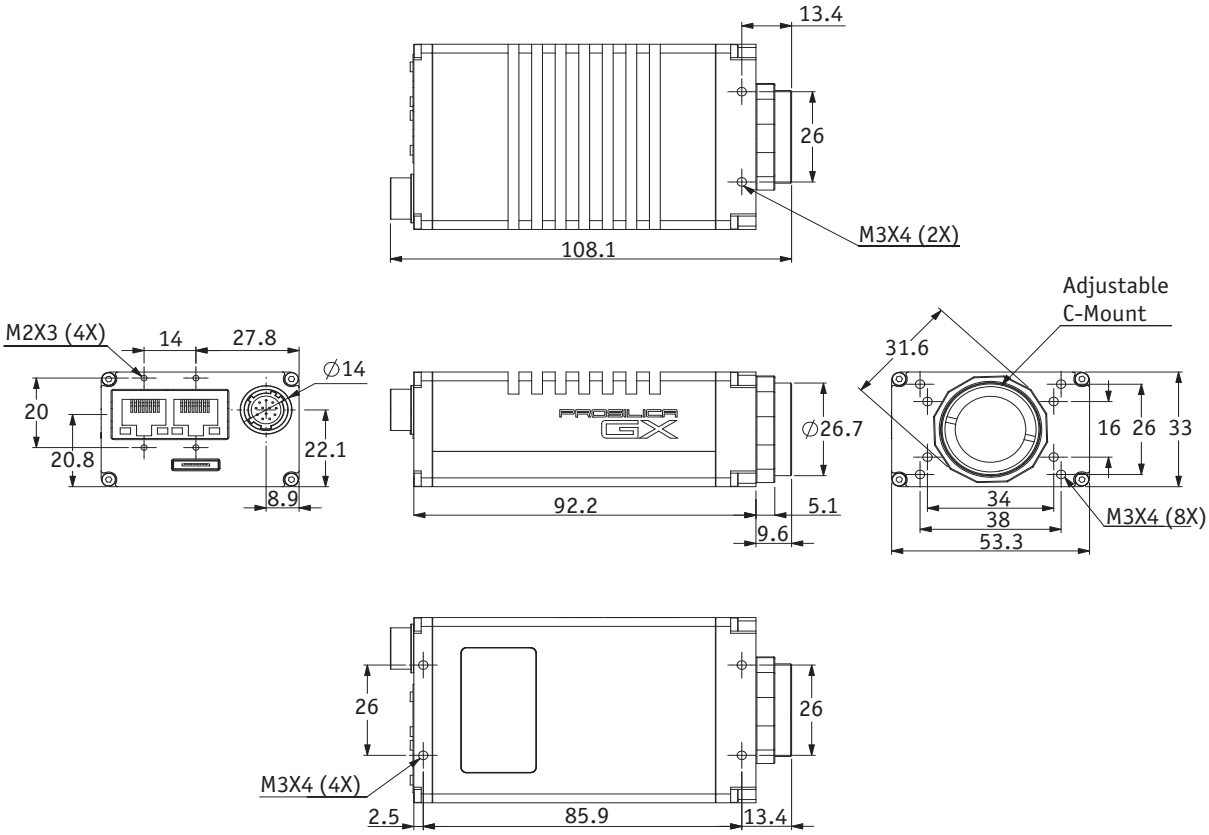


Figure 20: Prosilica GX1920 and GX2750 models mechanical dimensions

Note

Prosilica GX1920 and GX2750 are 1.3 mm longer than the remaining GX C-Mount models. The same tripod adapter can be used with all GX cameras.

Prosilica GX6600

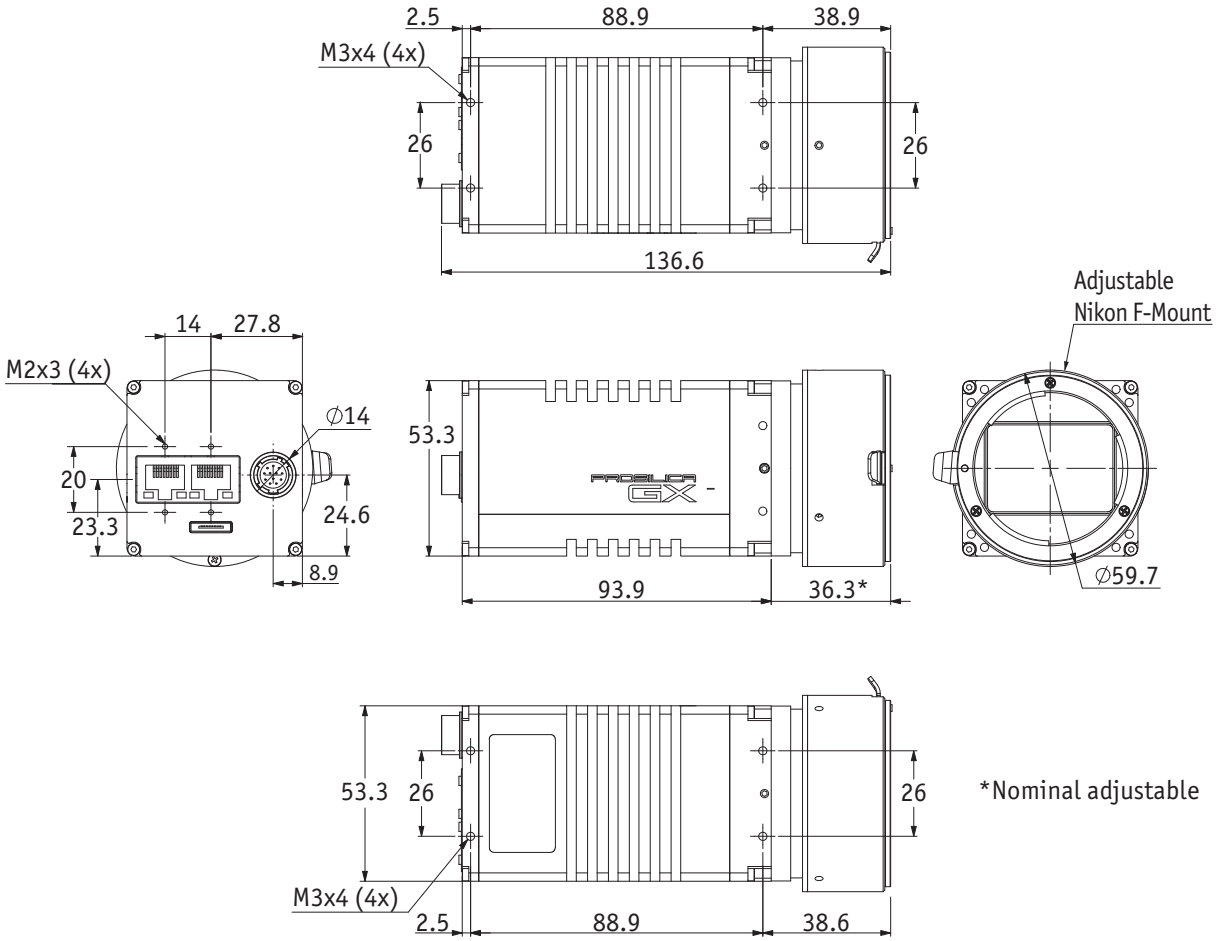


Figure 21: Prosilica GX6600 models mechanical dimensions

Note

Prosilica GX6600 is taller than the remaining GX C-Mount models.

Tripod adapter

For GX1050, GX1660, GX1910, GX1920, GX2300 and GX3300

A **Prosilica GX** camera can be mounted on a camera tripod by using a mounting plate. The GX1050, GX1660, GX1910, GX1920, GX2300 and GX3300 models can use the mounting plate 02-5030A

Note

Prosilica GX tripod mount is available for purchase from Allied Vision.

P/N: 02-5030A

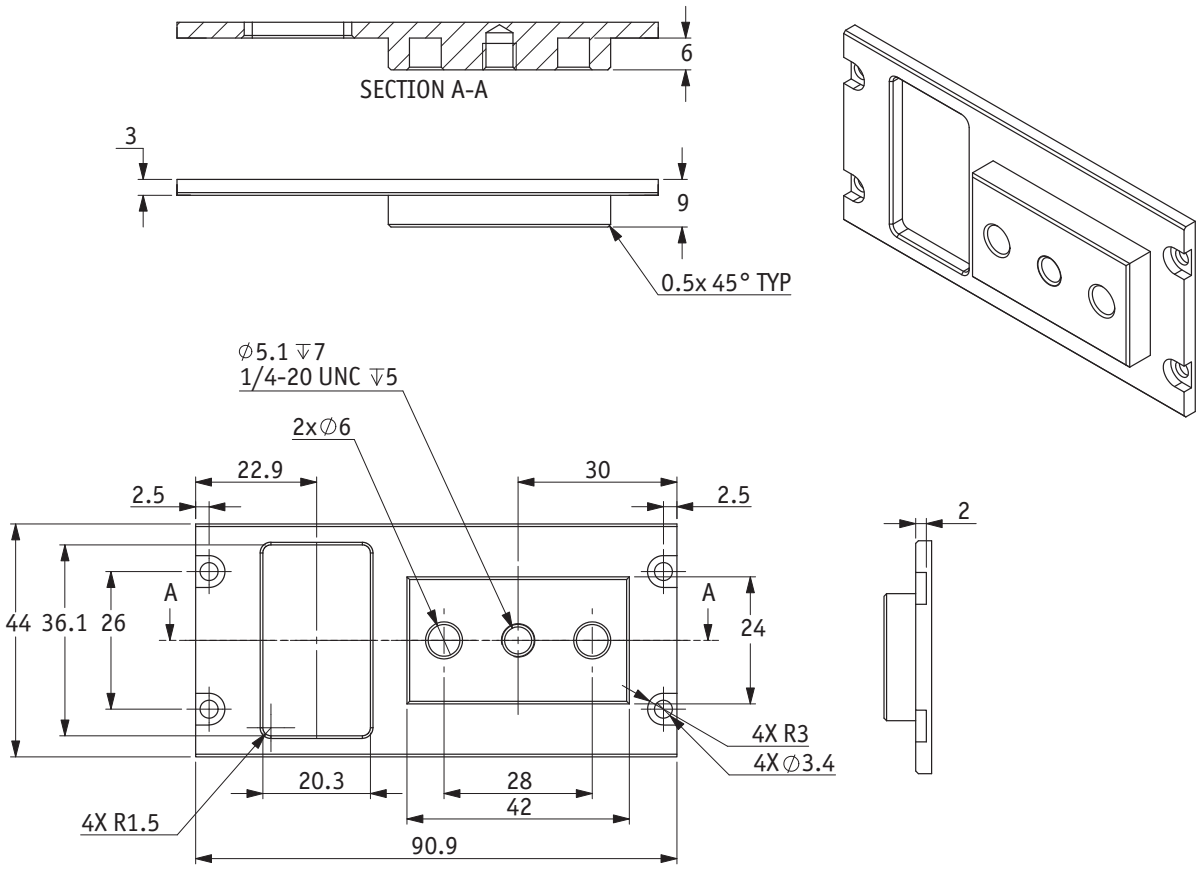


Figure 22: Prosilica GX tripod mount mechanical drawing

For GX6600

Adjustment of lens mount model camera can be mounted on a camera tripod by using mounting plate 02-5034A.

Note

Prosilica GX6600 tripod mount is available for purchase from Allied Vision.

P/N: 02-5034A

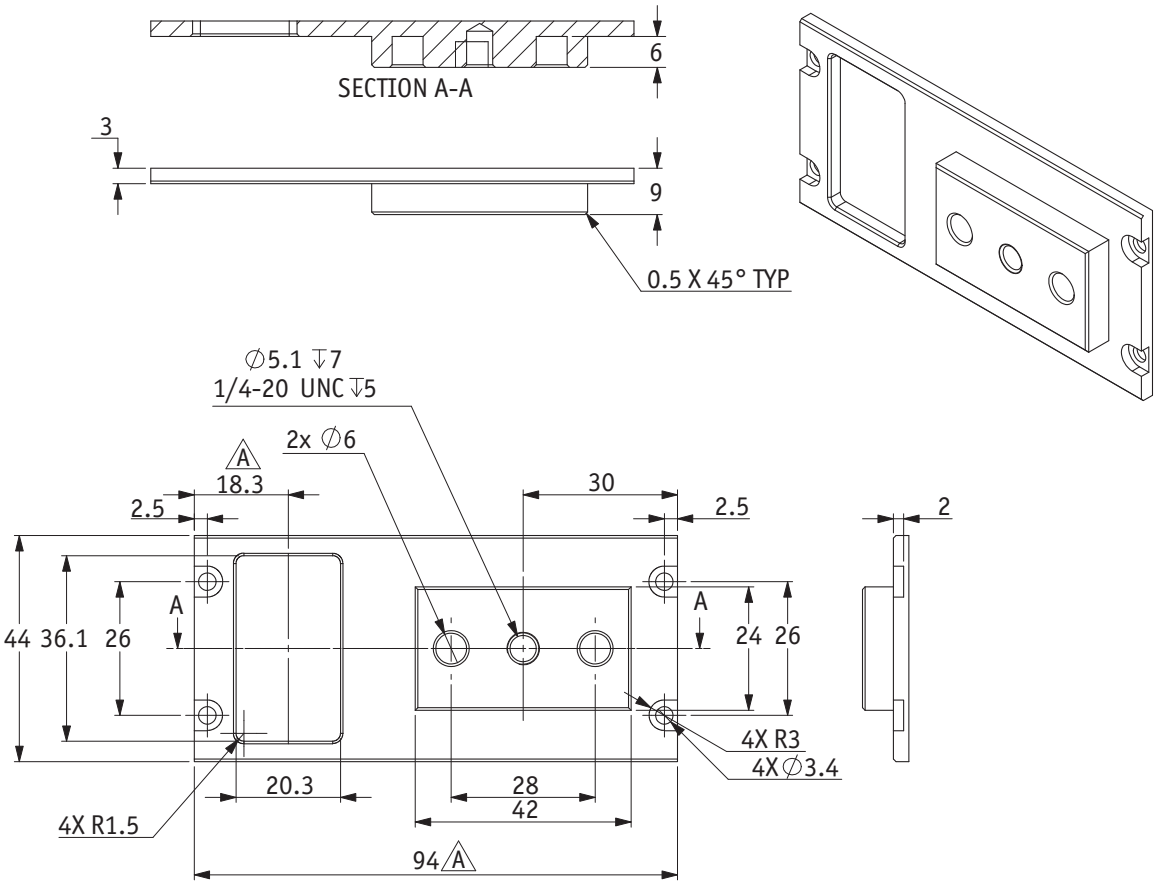


Figure 23: Prosilica GX6600 tripod mount mechanical drawing

C-Mount flange focal distance

Flange focal distance is the optical distance from the mounting flange to image sensor die. Prosilica GX C-Mount cameras are optically calibrated to a standard 17.526 mm optical flange focal distance, with a ±10 µm tolerance.

www

Prosilica GX cameras are shipped with adjustable C-Mount. The camera can also be built with a CS-Mount with a standard 12.50 mm optical flange focal distance and a ± 10 µm tolerance.

See **Modular Concept** for more information:

http://www.alliedvision.com/fileadmin/content/documents/products/cameras/various/modular-concept/Modular_concept_external.pdf

Adjustment of C-Mount

The C-Mount is adjusted at the factory and should not require adjusting. If for some reason the lens mount requires adjustment, use the following method.

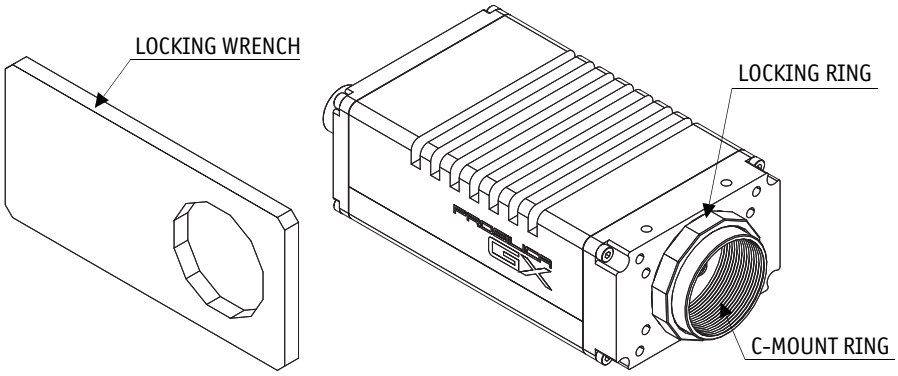


Figure 24: Prosilica GX camera and locking wrench

Loosen locking ring

Use an adjustable wrench to loosen the locking ring. Be careful not to scratch the camera. When the locking ring is loose, unthread the ring a few turns from the camera face.

Note

A wrench suitable for this procedure is available for purchase from Allied Vision.
P/N: 02-5003A

Image to infinity

Use a C-Mount compatible lens that allows an infinity focus. Set the lens to infinity and image a distant object—10 to 15 m should suffice. Make sure the lens is firmly threaded onto the C-Mount ring. Rotate the lens and C-Mount ring until the image is focused. Carefully tighten the locking ring and recheck focus.

Lens protrusion for C-Mount cameras

Lens protrusion is the distance from outer edge of C-Mount ring to contact point of first surface internal to C-Mount ring. For color cameras this surface is the IR-filter holder, and for mono cameras this surface is the internal camera front plate (see figure 25). Table 11 presents lens protrusion values for Prosilica GX cameras with C-Mount.

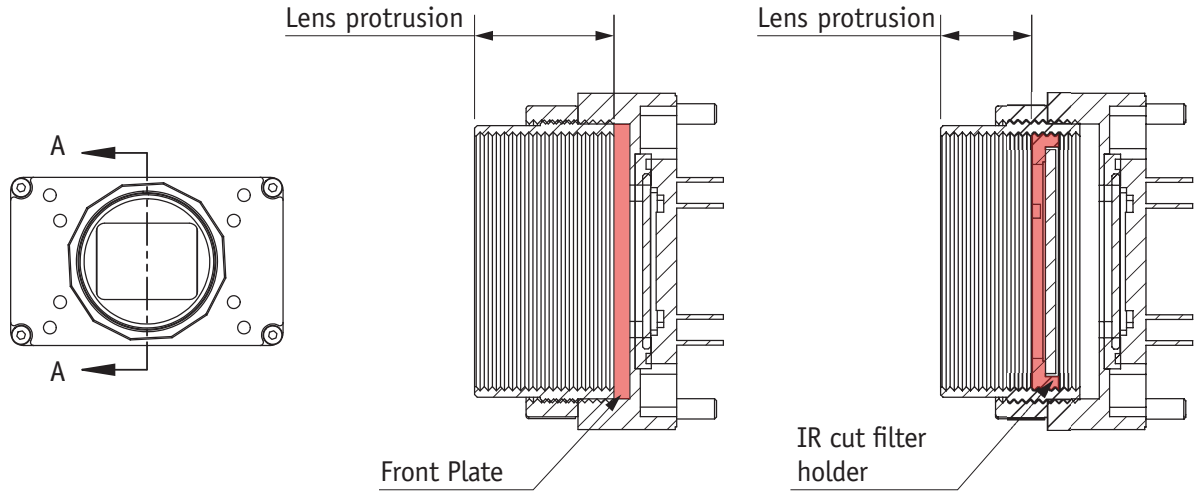


Figure 25: Cross section of typical Prosilica GX front assembly with C-Mount

Camera	Lens protrusion [mm]
GX1050	13.64
GX1050C	8.49
GX1660	13.64
GX1660C	8.49
GX1910	13.64
GX1910C	8.49
GX1920	13.64

Camera	Lens protrusion [mm]
GX2300	13.64
GX2300C	9.01
GX2750	13.64
GX2750C	3.84
GX3300	13.64
GX3300C	9.01

Table 11: Lens protrusion for Prosilica GX cameras with C-Mount

F-Mount flange focal distance

Flange focal distance is the optical distance from the mounting flange to image sensor die. Prosilica GX F-Mount cameras are optically calibrated to a standard 46.5 mm optical flange focal distance.

Adjustment of F-Mount

The F-Mount is adjusted at the factory and should not require adjusting. If for some reason, the lens mount requires adjustment, use the following method.

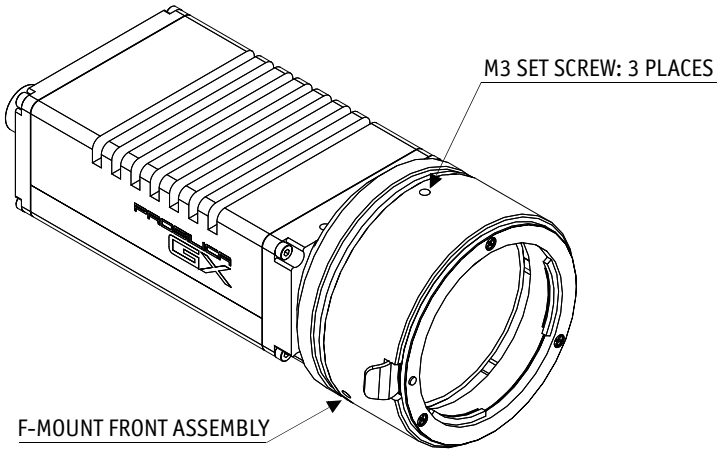


Figure 26: Prosilica GX F-Mount isometric view

Attach F-Mount compatible lens

Use an F-Mount compatible lens that allows an infinity focus. Attach the lens to the camera using a counter-clockwise rotation of about a quarter turn. The lens should snap into place and the lens flange and camera flange should mate over the full circumference.

Loosen F-Mount front assembly

Use a 1.5mm hex wrench to loosen the 3 set screws than hold the F-Mount front assembly to the camera body.

Image to infinity

Set the lens to infinity and image a distant object—10 to 15 m should suffice. Gently move the F-Mount front until focused and lock it in place.

Camera interfaces

This chapter provides information on Gigabit Ethernet port, inputs and outputs, and trigger features.

www

Accessories:
Please contact Allied Vision sales representative or your local Allied Vision dealer for information on accessories:
http://www.alliedvision.com/en/about-us/where-we-are.html

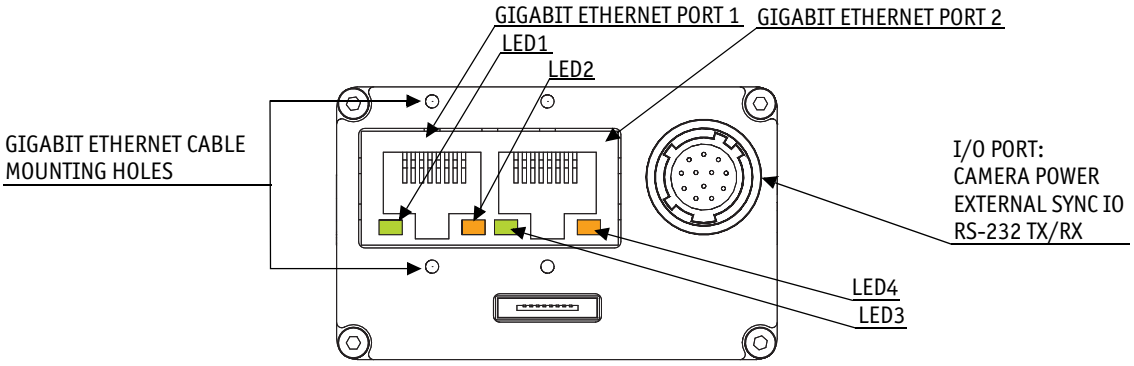


Figure 27: Prosilica GX connection ports

Status LEDs

The color of the LEDs have the following meaning:

	LED Color	Status
LED1	Flashing green	Camera is powered
	Solid green	Camera is booted, and link with the host is established
LED2	Flashing/solid orange	Ethernet activity
LED3	Flashing green	Camera is powered
	Solid green	Camera is booted, and link with the host is established
LED4	Flashing/solid orange	Ethernet activity

Table 12: Status of LEDs in Prosilica GX

Note

- Once the camera is booted, LED1/LED3 will remain solid green as long as the camera is powered, even if connection with the host is lost.
- All four LEDs are engaged only when camera is operated in Link Aggregation Group (LAG) mode.

Gigabit Ethernet port

The Gigabit Ethernet port conforms to the IEEE 802.3 1000BASE-T standard for Gigabit Ethernet over copper. Allied Vision recommends using Category 6 or higher compatible cabling and connectors for best performance.

The Prosilica GX offers two Gigabit Ethernet ports. This interface is enabled using Link aggregation. A link aggregation group (LAG) is automatically configured on the camera when both ports are connected. The host computer requires a dual port, LAG capable Ethernet adapter. The LAG group needs to be configured by the user.

www

The **GigE Installation Manual** offers detailed instructions for using Prosilica GX cameras in a dual port configuration.

http://www.alliedvision.com/fileadmin/content/documents/products/cameras/various/installation-manual/GigE_Installation_Manual.pdf

Note

See **Hardware Selection for Allied Vision GigE Cameras** application note for a list of recommended Ethernet adapters:

http://www.alliedvision.com/fileadmin/content/documents/products/cameras/various/appnote/Hardware_Selection_for_Allied_Vision_GigE_Cameras.pdf

A standard Ethernet adapter is available for purchase from Allied Vision:
P/N: 02-3002A
Model: Intel Pro 1000/PT

Note

Cable lengths up to 100 m are supported.

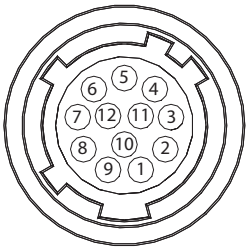
The 8-pin RJ-45 jack has the pin assignment according to the Ethernet standard (IEEE 802.3 1000BASE-T).

Note

Prosilica GX cameras support cables with vertical locking screw connector for a secured connection (See figure 27).

Allied Vision recommends using locking-screw cables from Components Express, Inc. for a perfect fit. Visit the CEI product configurator to customize the cable according to your needs.

Camera I/O connector pin assignment



Pin	Signal	Direction	Level	Description
1	Camera GND	In	GND for RS-232 and ext. power	Ground for RS-232 and camera power supply
2	Camera Power	In	5–24 VDC	Camera power supply
3	Out 4	Out	Open emitter max. 20 mA	Output 4 isolated (SyncOut4)
4	In 1	In	U_{in}(high) = 5–24 V U_{in}(low) = 0–0.8 V	Input 1 isolated (SyncIn1)
5	Out 3	Out	Open emitter max. 20 mA	Output 3 isolated (SyncOut3)
6	Out 1	Out	Open emitter max. 20 mA	Output 1 isolated (SyncOut1)
7	Isolated IO GND	In/Out	Common GND for In/Out	Isolated input and output signal ground
8	RxD RS-232	In	RS-232	Terminal receive data
9	TxD RS-232	Out	RS-232	Terminal transmit data
10	Isolated Out Power	In	Common VCC for outputs 5–24 V DC	Power input for digital outputs
11	In 2	In	U_{in}(high) = 5–24 V U_{in}(low) = 0–0.8 V	Input 2 isolated (SyncIn2)
12	Out 2	Out	Open emitter max. 20 mA	Output 2 isolated (SyncOut2)

Table 13: Camera I/O connector pin assignment

The General Purpose I/O port uses a Hirose HR10A-10R-12PB connector on the camera side. The mating cable connector is Hirose HR10A-10P-12S.

Note

This cable side Hirose connector can be purchased from Allied Vision.

P/N: K7600040 or 02-7002A

I/O definition

Camera Power

The Prosilica GX camera family supports a wide input power voltage range. The camera will not power in reverse polarity. Exceeding the voltage range specified below will damage the camera.

Caution 5–24 V. 12 V nominal.

Note A 12 V power adapter with Hirose connector can be ordered from Allied Vision:

- P/N 02-8003A North America Supply.
- P/N 02-8004A Universal Supply.

Isolated IO GND

This connection provides the user ground reference and return path for the **In 2**, **Out 3**, and **Out 4**. It is also recommended that the ground wiring be physically close to the used **In/Out** to prevent parasitic coupling. For example, a good cable design would connect the required signal on one conductor of a twisted pair and the **Isolated IO GND** on the second conductor of the same twisted pair.

RxD RS-232 and TxD RS-232

These signals are RS-232 compatible. These signals allow communication from the host system via the Ethernet port to a peripheral device connected to the camera. Tie RS-232 ground to **Camera GND** to complete the RS-232 circuit.

www For complete RS-232 description and usage, see:

http://www.alliedvision.com/fileadmin/content/documents/products/cameras/various/appnote/RS-232_Port_GigE_Cameras.pdf

Isolated Out Power

The **Isolated Out Power** connection provides power for isolated signals **Out 3** and **Out 4**. The voltage requirement is 5–24 V DC. The current requirement for this supply is a function of the optical isolator collector current and the number of outputs used in the system. **Isolated Out Power** wiring should be physically close to **Out 3** / **Out 4** wiring to prevent parasitic coupling.

Input triggers

In 1 and In 2

In 1 and **In 2** allow the camera to be synchronized to some external event. These signals are optically isolated and require the signal common (**Isolated IO GND**). The camera can be programmed to trigger on the rising or falling edge of these signals. The camera can also be programmed to capture an image at some programmable delay time after the trigger event. These signals can be driven from **5 V to 24 V** with a **minimum current source of 5 mA**.

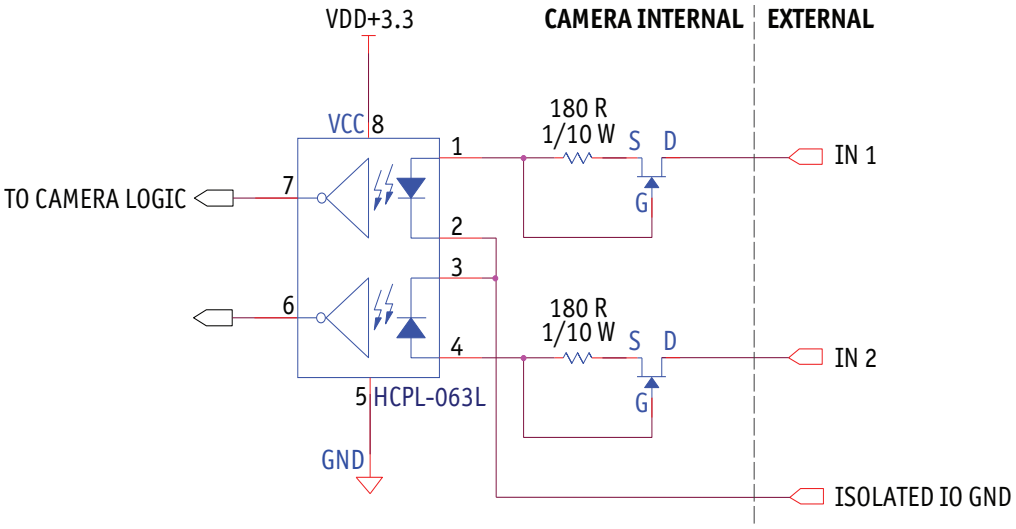


Figure 28: Prosilica GX input trigger. Camera internal circuit

Note

Avago HCPL-063L are optically coupled gates that combine a GaAsP light emitting diode and an integrated high gain photo detector. These are used for the opto-isolated camera inputs.

Output signals

Output signals can be configured to active high or active low. The internal camera signals are listed as follows:

Exposing	Corresponds to when camera is integrating light
Trigger Ready	Indicates when the camera will accept a trigger signal
Trigger Input	A relay of the trigger input signal used to “daisy chain” the trigger signal for multiple cameras
Readout	Valid when camera is reading out data
Imaging	Valid when camera is exposing or reading out
Strobe	Programmable pulse based on one of the above events
GPO	User programmable binary output

Out (1 to 4)

These signals are optically isolated and require the user to provide a high voltage level (**Isolated Out Power**) and signal common (**Isolated IO GND**). **Isolated Out Power** can be from 5 V to 24 V. An example of the functional circuit is indicated in the diagram below.

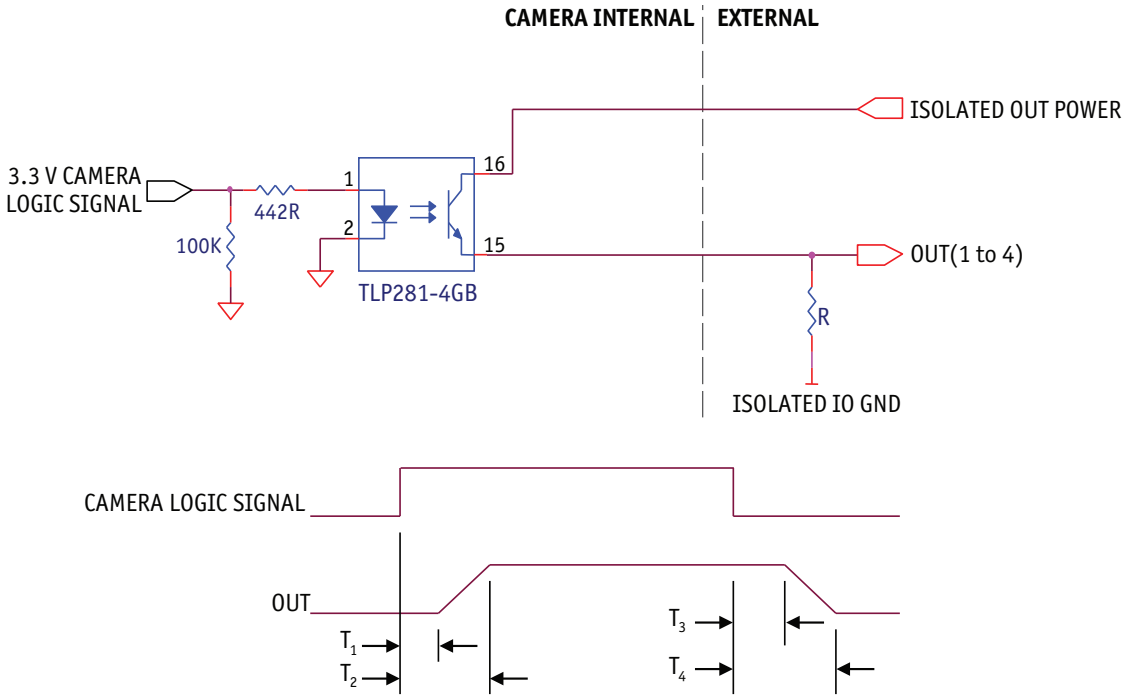


Figure 29: Prosilica GX output trigger circuit

Note

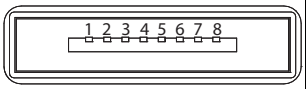
Toshiba TLP281-4GB consist of photo transistor, optically coupled to a GaAsP light emitting diode and an integrated high gain photo detector. These are used for the opto-isolated camera outputs.

Various **Isolated Out Power** values and load values for the above circuit are indicated in the following table. Trigger current, **OUT ICC**, is a function of **Isolated Out Power** voltage and load resistor **R**.

ISOLATED OUT POWER	OUT ICC	R	V LOAD	R POWER DISSIPATION	T_1	T_2	T_3	T_4
5 V	8 mA	500 Ω	4.1 V	32 mW	1.5 µs	6.5 µs	2 µs	14 µs
5 V	4.8 mA	1 KΩ	4.8 V	23 mW	1.5 µs	5 µs	17 µs	40 µs
12 V	9.2 mA	1.2 KΩ	11.2 V	101 mW	1.5 µs	11.2 µs	2 µs	20 µs
12 V	4.9 mA	2.4 KΩ	11.8 V	58 mW	1.5 µs	8.5 µs	17 µs	55 µs
24 V	9.5 mA	2.4 KΩ	23.2 V	217 mW	1.5 µs	22 µs	2 µs	37 µs
24 V	5 mA	4.8 KΩ	23.8 V	120 mW	1.5 µs	12 µs	17 µs	105 µs

Table 14: Prosilica GX trigger circuit values

Lens control port



Pin	Signal	Direction	Description
1	Iris +	Out	Open Iris
2	Iris -	Out	Close iris
3	Focus +	Out	Focus far
4	Focus -	Out	Focus close
5	Zoom +	Out	Zoom out
6	Zoom -	Out	Zoom in
7	Video Iris	Out	PWM Signal for Iris Control
8	External GND	---	External Ground for all lens control signals

Table 15: Prosilica GX lens connector definition

The lens control connector is a Hirose 3260-8S3. This connector provides the signals necessary to control the iris, focus, and zoom of most commercially available TV Zoom and Video-type auto-iris lenses. The cable side connector is Hirose 3240-8P. The camera can be configured to operate lenses with unipolar voltage requirements of 6–12 V or lenses that operate with bipolar voltages from ±6 V up to ±12 V. This voltage level can be controlled through software. The default voltage is set to 6 V. The current capacity for each axis is 50 mA.

Caution **Do not exceed the lens manufacturers voltage specification.**

Note This cable side Hirose connector can be purchased from Allied Vision.

P/N: 02-7004A

Video iris connection

Prosilica GX cameras provide built-in auto iris controls for controlling video-type auto-iris lenses. These lenses are available from many popular security lens companies including Pentax, Fujinon, Tamron, Schneider and others.

Remote iris lens control allows the camera to be more adaptable to changing light conditions. It allows the user to manually control the exposure and gain values and rely solely on the auto iris for adjustment to ambient lighting.

Caution

This diagram uses CAMERA POWER to power the video iris lens, and assumes CAMERA POWER = 12 V. Most video iris lenses operate at a 8–16 V input voltage. **Therefore, this circuit is not appropriate if using a 24 V camera power supply. Doing so may irreparably damage your lens**. Please consult your video iris lens specifications for the appropriate drive voltage.

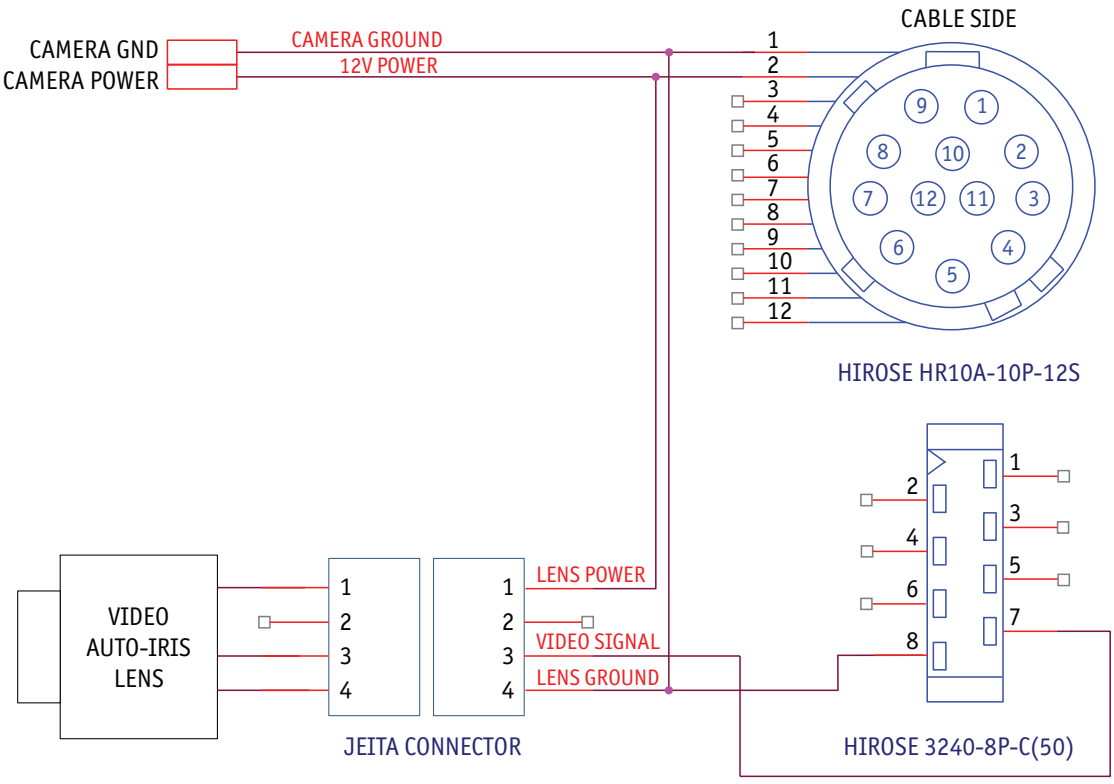


Figure 30: Prosilica GX video iris schematic

Motorized lens connection

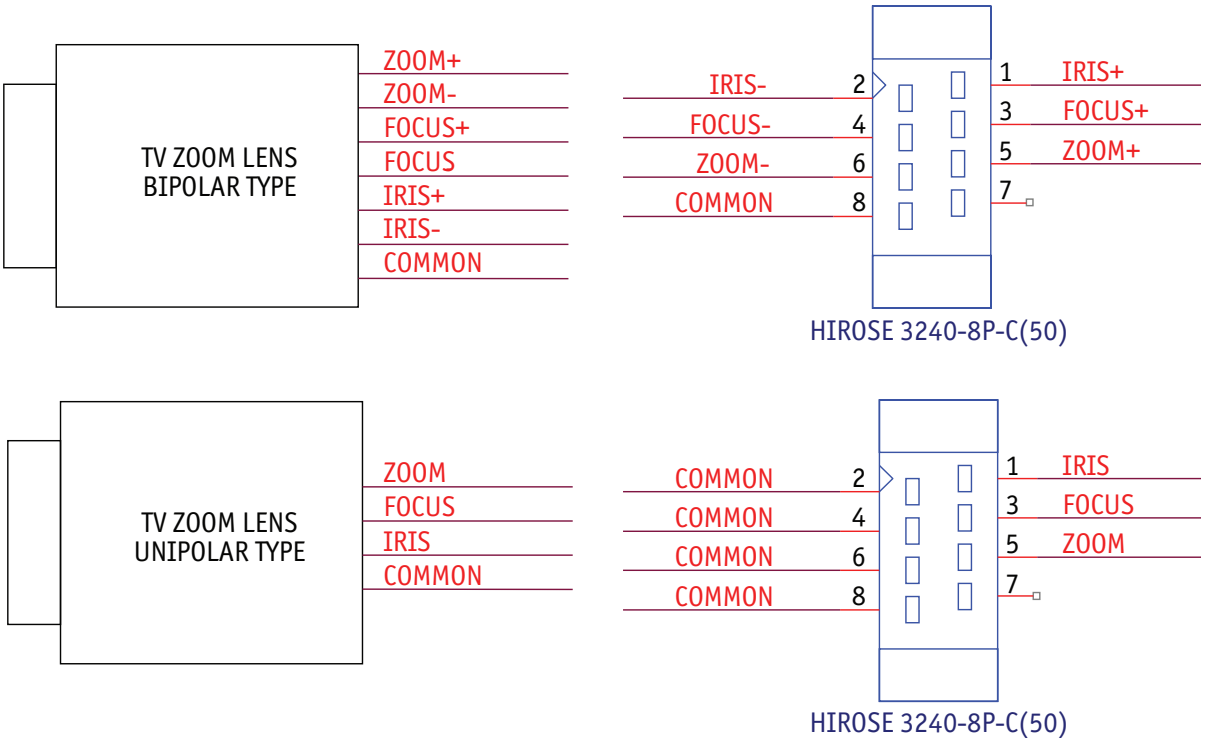


Figure 31: Prosilica GX motorized lens connection diagram

Caution **WARNING**

Verify lens voltage setting on camera does not exceed lens voltage specification. Camera lens voltage is controlled by software. This is set to 6 V after power up and cannot be saved to user configuration files. Current capacity per axis = 50 mA.

Trigger timing diagram

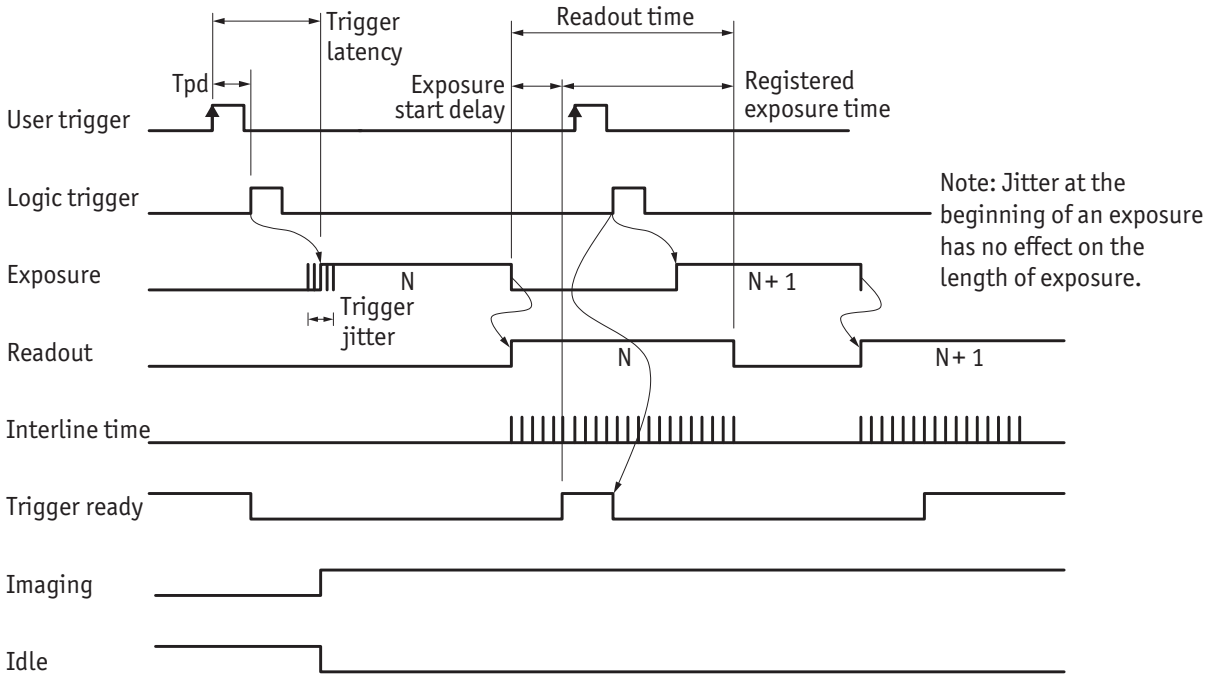


Figure 32: Prosilica GX internal signal timing waveforms

Notes on triggering

Term	Definition
User trigger	Trigger signal applied by the user (hardware trigger, software trigger)
Logic trigger	Trigger signal seen by the camera internal logic (not visible to the user)
Tpd	Propagation delay between the user trigger and the logic trigger
Exposure	High when the camera image sensor is integrating light
Readout	High when the camera image sensor is reading out data
Trigger latency	Time delay between the user trigger and the start of exposure
Trigger jitter	Error in the trigger latency time

Table 16: Explanation of signals in timing diagram

Term	Definition
Trigger ready	Indicates to the user that the camera will accept the next trigger
Registered exposure time	Exposure time value currently stored in the camera memory
Exposure start delay	Registered exposure time subtracted from the read-out time and indicates when the next exposure cycle can begin such that the exposure will end after the current readout
Interline time	Time between sensor row readout cycles
Imaging	High when the camera image sensor is either exposing and/or reading out data
Idle	High if the camera image sensor is not exposing and/or reading out data

Table 16: Explanation of signals in timing diagram

Trigger rules

Note

The **user trigger pulse width** should be at least three times the width of the trigger latency as indicated in Chapter Specifications on page 13.

- The **end of exposure** will always trigger the next readout.
- The **end of exposure** must always end after the current readout.
- The **start of exposure** must always correspond with the interline time if readout is true.
- **Exposure start delay** equals the readout time minus the registered exposure time.

Triggering during the Idle State

For applications requiring the shortest possible *Trigger Latency* and the smallest possible *Trigger Jitter* the *User Trigger* signal should be applied when *Imaging* is false and *Idle* is true. In this case, *Trigger Latency* and *Trigger Jitter* are as indicated in the camera specifications.

Triggering during the Readout State

For applications requiring the fastest triggering cycle time whereby the camera image sensor is exposing and reading out simultaneously, apply the *User Trigger* signal as soon as a valid *Trigger Ready* is detected. In this case, *Trigger Latency* and *Trigger Jitter* can be up to 1 row time since *Exposure* must always begin on an *Interline* boundary.

Firmware update

Firmware updates are carried out via the GigE connection. Allied Vision provides an application for all Prosilica GX cameras that loads firmware to the camera using a simple interface. New feature introductions and product improvements motivate new firmware releases. All users are encouraged to use the newest firmware available and complete the firmware update if necessary.

www

Download the latest GigE firmware loader from the Allied Vision website:
http://www.alliedvision.com/en/support/firmware

www

For more information on GigE firmware update:
http://www.alliedvision.com/fileadmin/content/documents/products/cameras/various/appnote/GigE_Firmware_Update.pdf

Resolution and ROI frame rates

This section provides performance information about the impact of reducing the region of interest on the camera's maximum frame rate. In addition, because the Prosilica GX camera offers Dual GigE LAG, the impact of using a single Ethernet connection versus dual Ethernet connections with the host is compared.

Single port GigE connection with the Prosilica GX

When a Prosilica GX camera is connected to the host computer using a single Ethernet connection, it behaves like a single port GigE Vision camera. The total bandwidth available for the camera is 125 MB or 1 Gb. A Dual GigE LAG connection supported by the Prosilica GX camera offers up to 250 MB or 2 Gb of bandwidth.

Bandwidth limiting of frame rate

There are several factors that limit the frame rate of a camera, for example, input trigger speed and mode, exposure time, sensor readout time, and available bandwidth. For the following discussion and charts we assume input trigger settings and exposure time are set so as not to limit the frame of the camera. This leaves sensor readout time, the time to physically output the charge off a camera sensor, and available bandwidth. In most cases, the sensor readout time dictates the true frame rate of a camera, unless the amount of transmitted data exceeds what is available on the GigE interface.

In the example chart below, the frame rate for a 16-bit pixel format is given on a GX1050 camera. The upper line shows the frame rate in Dual GigE mode, where no bandwidth limitation occurs. The lower line shows the frame rate in single GigE mode, where bandwidth limitation occurs after a data threshold of 124 Mb/s. This is the shaded region below, occurring at an image height greater than 200 pixels.

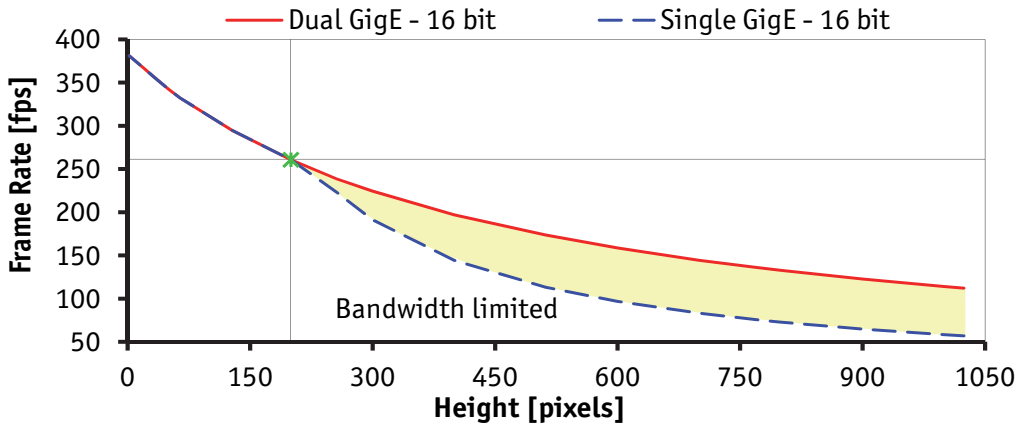


Figure 33: Illustration of bandwidth limiting: frame rate vs. height for Prosilica GX1050 in single port GigE configuration - 16 bit pixel format

Note

For some GX cameras, e.g. GX1910, GX2300, bandwidth limiting occurs even in 8-bit pixel formats, although not as severely as with a 16-bit pixel format.

The Prosilica GX camera can be operated near peak sensor frame rates even when using a single port connection. The frame rate vs. height graphs included in this section provide frame rate performance results for both single GigE port and Dual GigE LAG configurations at 8-/16-bit output formats.

Note

- Frame rate data was generated using **StreamBytesPerSecond = 124 MB/s** and 8-/16-bit pixel format
  - 8-bit pixel formats: Mono8, BayerRG8, or BayerGR8
  - 16-bit pixel formats: Mono12, BayerRG12, or BayerGR12

  Frame rates may be lower if using network hardware incapable of 124 MB/s.
- ROIs are center image, where attribute **RegionY = (full sensor height – ROI height)/2**, for maximum speed advantage on a quad-tap CCD sensor.
- The camera frame rate can be increased by reducing the camera's Height attribute, resulting in a decreased region of interest (ROI) or “window”.
- The camera frame rate can also be increased by increasing the camera's BinningY attribute, resulting in a vertically scaled image (less overall height with same field of view).
- There is no frame rate increase with reduced width.

Prosilica GX1050

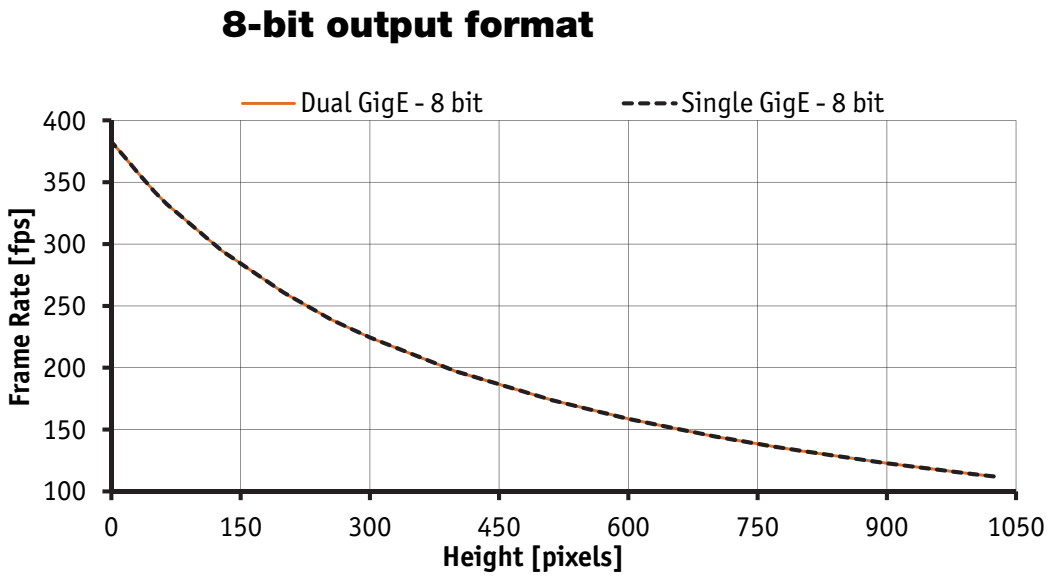


Figure 34: Frame rate vs. height for Prosilica GX1050 - 8 bit pixel format

Height	[1]Width	[2]RegionY	Frame rate single GigE	Frame rate dual GigE
1024	1024	0	112.1	112.1
1000	1024	12	114.0	114.0
900	1024	62	122.7	122.7
800	1024	112	132.8	132.8
768	1024	128	136.3	136.3
700	1024	162	144.4	144.4
600	1024	212	158.6	158.6
512	1024	256	173.7	173.7
400	1024	312	197.0	196.9
300	1024	362	224.4	224.4
256	1024	384	238.6	238.6
200	1024	412	260.7	260.7
128	1024	448	294.7	294.7
64	1024	480	332.4	332.4
50	1024	487	342.4	342.4
32	1024	496	356.6	356.6
20	1024	502	366.5	366.5
10	1024	507	374.7	374.7
2	1024	511	381.0	381.0

[3]BinningY	Height	Width	Frame rate single GigE	Frame rate dual GigE
2	512	1024	196.6	197.0
3	340	1024	262.2	263.6
4	256	1024	313.3	315.4
5	204	1024	354.5	358.4
6	170	1024	385.7	392.9
7	146	1024	418.6	421.2
8	128	1024	442.1	444.6

[1]There is no frame rate increase with reduced width.

[2]For maximum speed advantage **ROIs are taken as center image**, where attribute **RegionY = (full sensor height – ROI height)/2**.

[3]**BinningY** is horizontal row summing on CCD before readout.

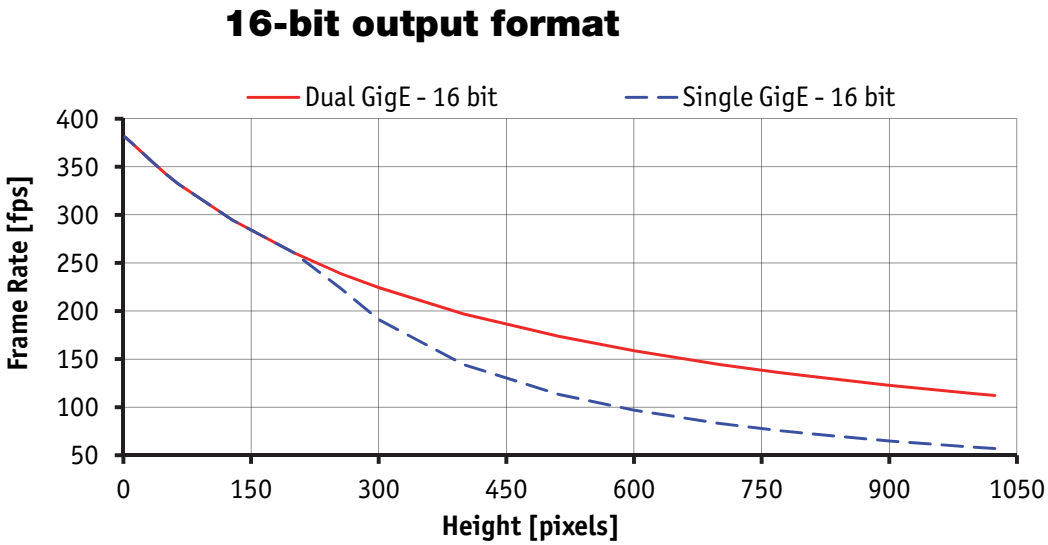


Figure 35: Frame rate vs. height for Prosilica GX1050 - 2 Byte pixel format

Height	[1]Width	[2]RegionY	Frame rate single GigE	Frame rate dual GigE
1024	1024	0	57.1	112.1
1000	1024	12	58.4	114.0
900	1024	62	64.8	122.7
800	1024	112	72.9	132.8
768	1024	128	75.9	136.3
700	1024	162	83.2	144.4
600	1024	212	96.8	158.6
512	1024	256	113.2	173.7
400	1024	312	144.3	197.0
300	1024	362	191.2	224.4
256	1024	384	223.1	238.6
200	1024	412	260.7	260.7
128	1024	448	294.7	294.7
64	1024	480	332.4	332.4
50	1024	487	342.4	342.4
32	1024	496	356.6	356.6
20	1024	502	366.5	366.5
10	1024	507	374.7	374.7
2	1024	511	381.0	381.0

[3]BinningY	Height	Width	Frame rate single GigE	Frame rate dual GigE
2	512	1024	113.1	197.0
3	340	1024	168.4	263.6
4	256	1024	221.1	315.4
5	204	1024	274.4	358.4
6	170	1024	329.3	392.9
7	146	1024	379.9	421.2
8	128	1024	423.4	444.6

[1]There is no frame rate increase with reduced width.

[2]For maximum speed advantage **ROIs are taken as center image**, where attribute **RegionY = (full sensor height – ROI height)/2**.

[3]**BinningY** is horizontal row summing on CCD before readout.

Prosilica GX1660

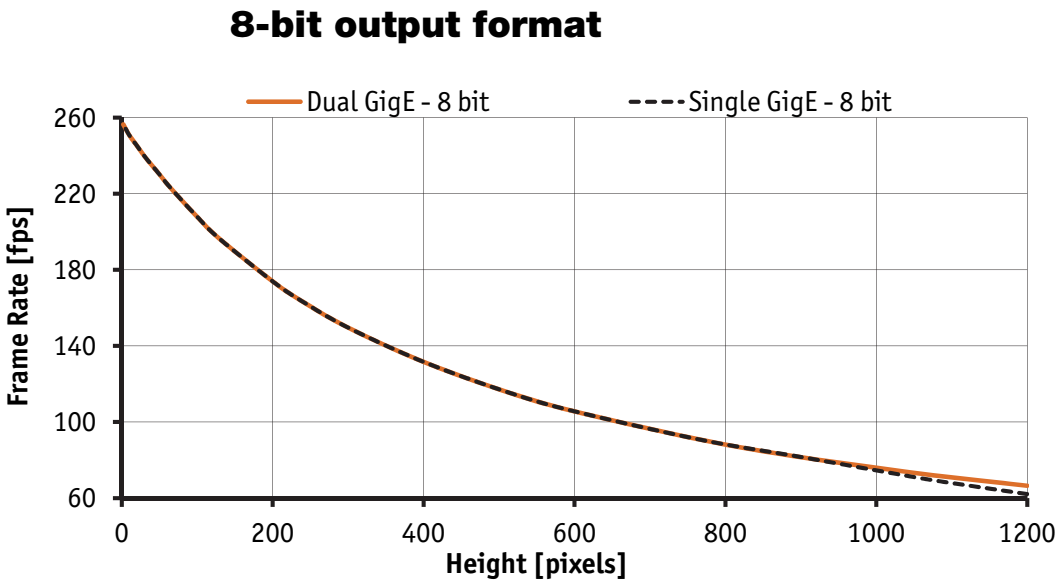


Figure 36: Frame rate vs. height for Prosilica GX1660 - 8 bit pixel format

Height	[1]Width	[2]RegionY	Frame rate single GigE	Frame rate dual GigE
1200	1600	0	62.1	66.5
1080	1600	60	69.1	71.8
1024	1600	88	72.9	74.7
900	1600	150	81.6	81.5
768	1600	216	90.6	90.6
600	1600	300	105.6	105.6
512	1600	344	115.6	115.6
400	1600	400	131.6	131.6
300	1600	450	149.6	149.6
240	1600	480	163.2	163.2
200	1600	500	173.9	173.9
128	1600	536	196.8	196.8
100	1600	550	207.8	207.8
64	1600	568	223.3	223.3
50	1600	575	230.1	230.1
32	1600	584	238.7	238.7
20	1600	590	245.2	245.2
10	1600	595	250.7	250.7
2	1600	599	256.4	256.4

[3]BinningY	Height	Width	Frame rate single GigE	Frame rate dual GigE
2	600	1600	118.7	121.0
3	400	1600	165.4	165.4
4	300	1600	202.7	202.7
5	240	1600	234.1	234.1
6	200	1600	260.8	260.8
7	170	1600	283.9	283.9
8	150	1600	303.1	303.1

[1]There is no frame rate increase with reduced width.

[2]For maximum speed advantage **ROIs are taken as center image**, where attribute **RegionY = (full sensor height – ROI height)/2**.

[3]**BinningY** is horizontal row summing on CCD before readout.

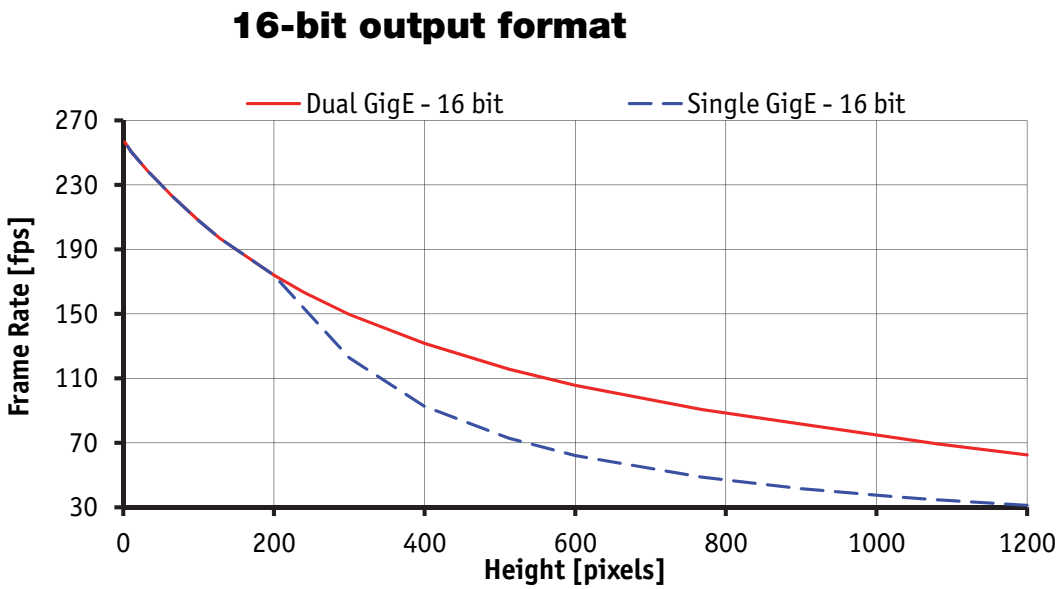


Figure 37: Frame rate vs. height for Prosilica GX1660 - 2 Byte pixel format

Height	[1]Width	[2]RegionY	Frame rate single GigE	Frame rate dual GigE
1200	1600	0	31.3	62.5
1080	1600	60	34.7	69.4
1024	1600	88	36.6	73.2
900	1600	150	41.6	81.6
768	1600	216	48.7	90.7
600	1600	300	62.1	105.6
512	1600	344	72.9	115.7
400	1600	400	92.6	131.6
300	1600	450	122.7	149.6
240	1600	480	153.4	163.2
200	1600	500	174.0	174.0
128	1600	536	196.9	196.9
100	1600	550	207.8	207.8
64	1600	568	223.3	223.3
50	1600	575	230.2	230.2
32	1600	584	238.7	238.8
20	1600	590	245.3	245.3
10	1600	595	250.8	250.8
2	1600	599	256.5	256.5

[3]BinningY	Height	Width	Frame rate single GigE	Frame rate dual GigE
2	600	1600	62.3	120.7
3	400	1600	92.6	165.4
4	300	1600	123.5	202.8
5	240	1600	152.8	234.2
6	200	1600	182.9	260.8
7	170	1600	214.7	284.0
8	150	1600	242.9	303.1

[1]There is no frame rate increase with reduced width.

[2]For maximum speed advantage **ROIs are taken as center image**, where attribute **RegionY = (full sensor height – ROI height)/2**.

[3]**BinningY** is horizontal row summing on CCD before readout.

Prosilica GX1910

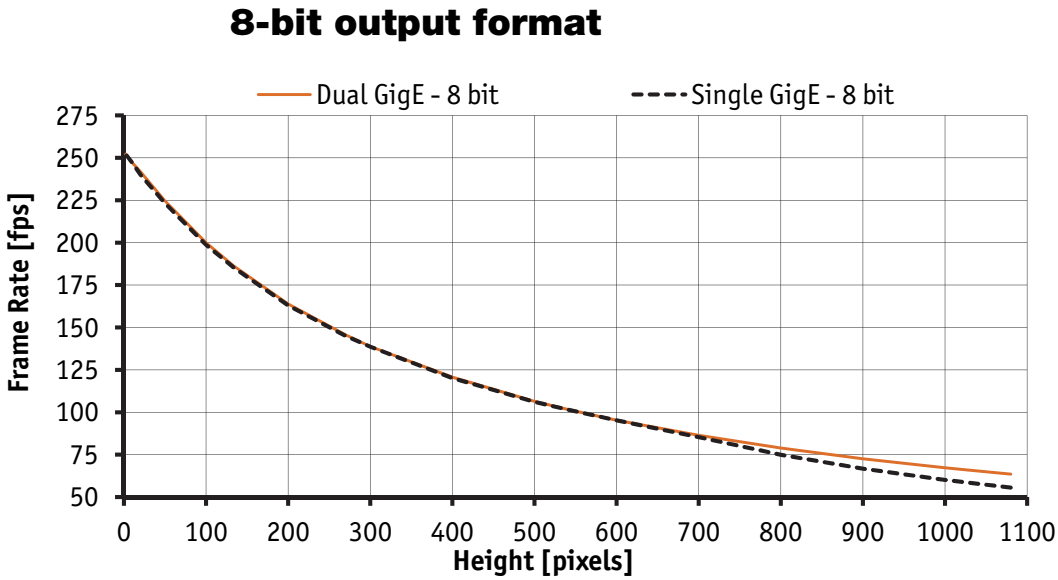


Figure 38: Frame rate vs. height for Prosilica GX1910 - 8 bit pixel format

Height	[1]Width	[2]RegionY	Frame rate single GigE	Frame rate dual GigE
1080	1920	0	55.6	63.5
1024	1920	28	58.8	66.1
1000	1920	40	60.1	67.3
900	1920	90	66.8	72.6
800	1920	140	74.9	78.9
700	1920	190	85.3	86.4
600	1920	240	95.2	95.3
540	1920	270	101.6	101.7
500	1920	290	106.1	106.5
400	1920	340	120.2	120.7
300	1920	390	138.7	138.8
270	1920	405	145.0	145.6
200	1920	440	163.0	163.8
134	1920	473	185.2	186.2
100	1920	490	198.7	199.9
50	1920	515	223.2	224.7
20	1920	530	240.1	241.9
10	1920	535	247.2	247.2
2	1920	539	252.2	252.2

[3]BinningY	Height	Width	Frame rate single GigE	Frame rate dual GigE
2	540	1920	116.3	116.4
3	360	1920	160.8	160.8
4	270	1920	198.5	198.5
5	216	1920	230.6	230.6
6	180	1920	258.2	258.2
7	154	1920	282.3	282.4
8	134	1920	302.3	302.3

[1]There is no frame rate increase with reduced width.

[2]For maximum speed advantage **ROIs are taken as center image**, where attribute **RegionY = (full sensor height – ROI height)/2**.

[3]**BinningY** is horizontal row summing on CCD before readout.

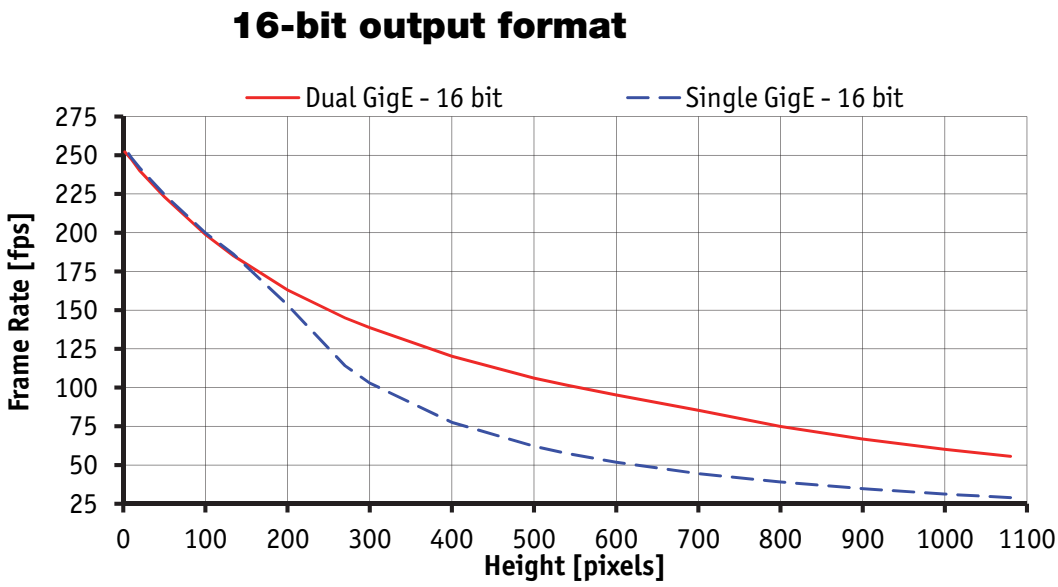


Figure 39: Frame rate vs. height for Prosilica GX1910 - 2 Byte pixel format

Height	[1]Width	[2]RegionY	Frame rate single GigE	Frame rate dual GigE
1080	1920	0	28.9	55.6
1024	1920	28	30.5	58.8
1000	1920	40	31.3	60.1
900	1920	90	34.7	66.8
800	1920	140	39.0	74.9
700	1920	190	44.5	85.3
600	1920	240	51.8	95.2
540	1920	270	57.5	101.6
500	1920	290	62.1	106.1
400	1920	340	77.5	120.2
300	1920	390	102.9	138.7
270	1920	405	114.1	145.0
200	1920	440	153.4	163.0
134	1920	473	186.2	185.2
100	1920	490	199.9	198.7
50	1920	515	224.7	223.2
20	1920	530	241.9	240.1
10	1920	535	248.3	247.2
2	1920	539	254.8	252.2

[3]BinningY	Height	Width	Frame rate single GigE	Frame rate dual GigE
2	540	1920	57.5	115.0
3	360	1920	86.1	160.8
4	270	1920	114.1	198.5
5	216	1920	141.5	230.7
6	180	1920	169.2	258.3
7	154	1920	196.3	282.4
8	134	1920	226.5	302.4

[1]There is no frame rate increase with reduced width.

[2]For maximum speed advantage **ROIs are taken as center image**, where attribute **RegionY = (full sensor height – ROI height)/2**.

[3]**BinningY** is horizontal row summing on CCD before readout.

Prosilica GX1920

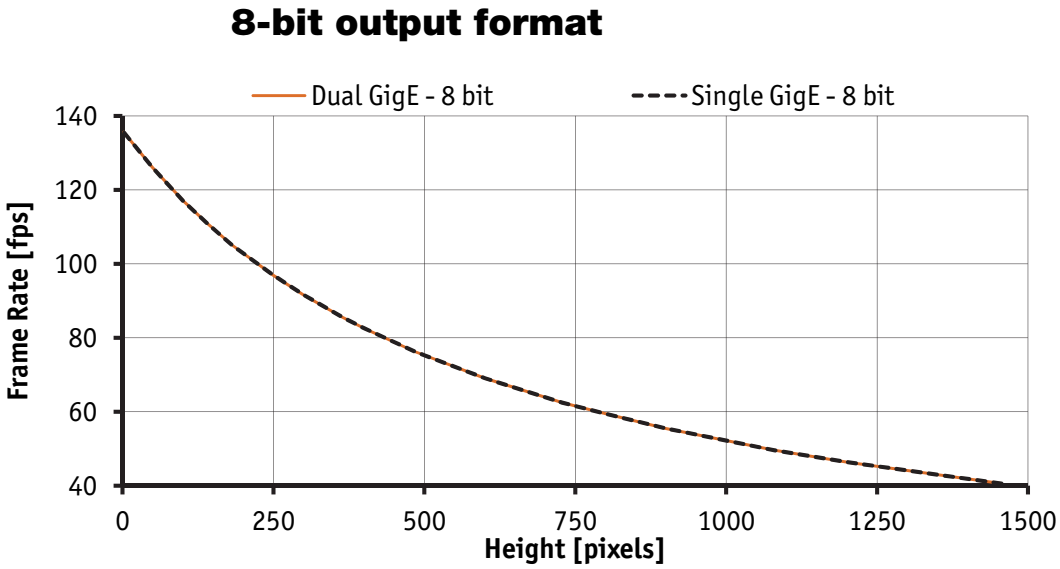


Figure 40: Frame rate vs. height for Prosilica GX1920 - 8 bit pixel format

Height	[1]Width	[2]RegionY	Frame rate single GigE	Frame rate dual GigE
1456	1936	0	40.6	40.6
1200	1936	128	46.4	46.4
1080	1936	188	49.6	49.6
900	1936	278	55.5	55.5
800	1936	328	59.5	59.5
728	1936	364	62.5	62.5
600	1936	428	69.1	69.1
500	1936	478	75.3	75.3
484	1936	486	76.3	76.3
400	1936	528	82.6	82.6
364	1936	546	85.6	85.6
300	1936	578	91.6	91.6
250	1936	603	96.9	96.9
182	1936	637	105.0	105.0
140	1936	658	111.0	111.0
100	1936	678	117.1	117.1
50	1936	703	126.0	126.0
2	1936	727	135.6	135.6

[3]BinningY	Height	Width	Frame rate single GigE	Frame rate dual GigE
2	728	1936	70.2	70.2
3	484	1936	92.8	92.8
4	364	1936	109.5	109.5
5	290	1936	123.5	123.5
6	242	1936	134.5	134.5
7	208	1936	143.5	143.5
8	182	1936	151.1	151.1

[1]There is no frame rate increase with reduced width.

[2]For maximum speed advantage **ROIs are taken as center image**, where attribute **RegionY = (full sensor height – ROI height)/2**.

[3]**BinningY** is horizontal row summing on CCD before readout.

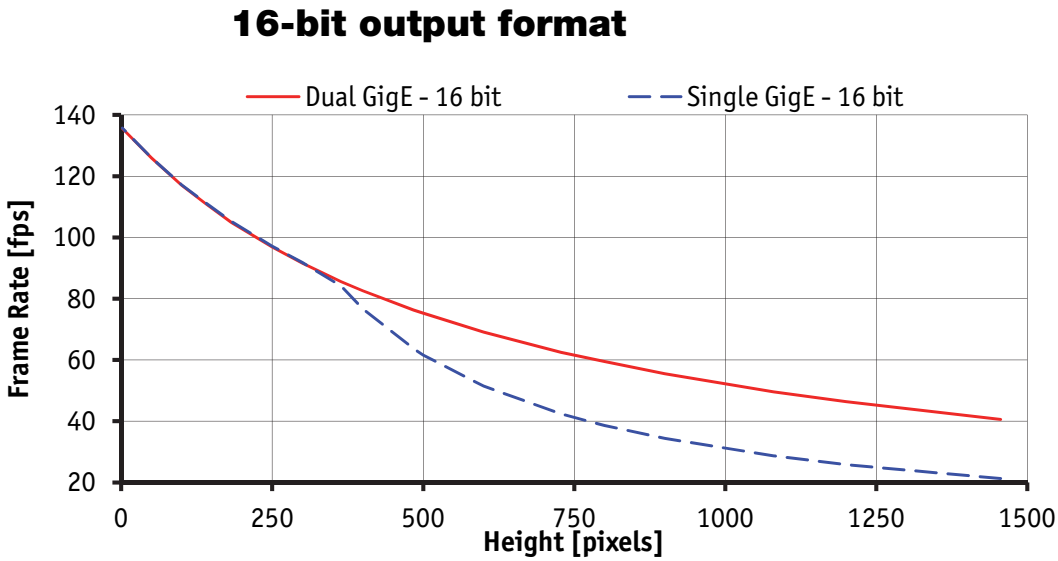


Figure 41: Frame rate vs. height for Prosilica GX1920 - 2 Byte pixel format

Height	[1]Width	[2]RegionY	Frame rate single GigE	Frame rate dual GigE
1456	1936	0	21.3	40.6
1200	1936	128	25.8	46.4
1080	1936	188	28.7	49.6
900	1936	278	34.4	55.5
800	1936	328	38.6	59.5
728	1936	364	42.4	62.5
600	1936	428	51.5	69.1
500	1936	478	61.6	75.3
484	1936	486	63.7	76.3
400	1936	528	76.7	82.6
364	1936	546	84.1	85.6
300	1936	578	91.8	91.6
250	1936	603	97.2	96.9
182	1936	637	105.3	105.0
140	1936	658	111.3	111.0
100	1936	678	117.2	117.1
50	1936	703	126.0	126.0
2	1936	727	135.7	135.6

[3]BinningY	Height	Width	Frame rate single GigE	Frame rate dual GigE
2	728	1936	42.5	70.3
3	484	1936	63.6	92.8
4	364	1936	84.2	110.0
5	290	1936	105.8	124.1
6	242	1936	125.6	135.1
7	208	1936	144.1	144.1
8	182	1936	151.7	151.7

[1]There is no frame rate increase with reduced width.

[2]For maximum speed advantage **ROIs are taken as center image**, where attribute **RegionY = (full sensor height – ROI height)/2**.

[3]**BinningY** is horizontal row summing on CCD before readout.

Prosilica GX2300

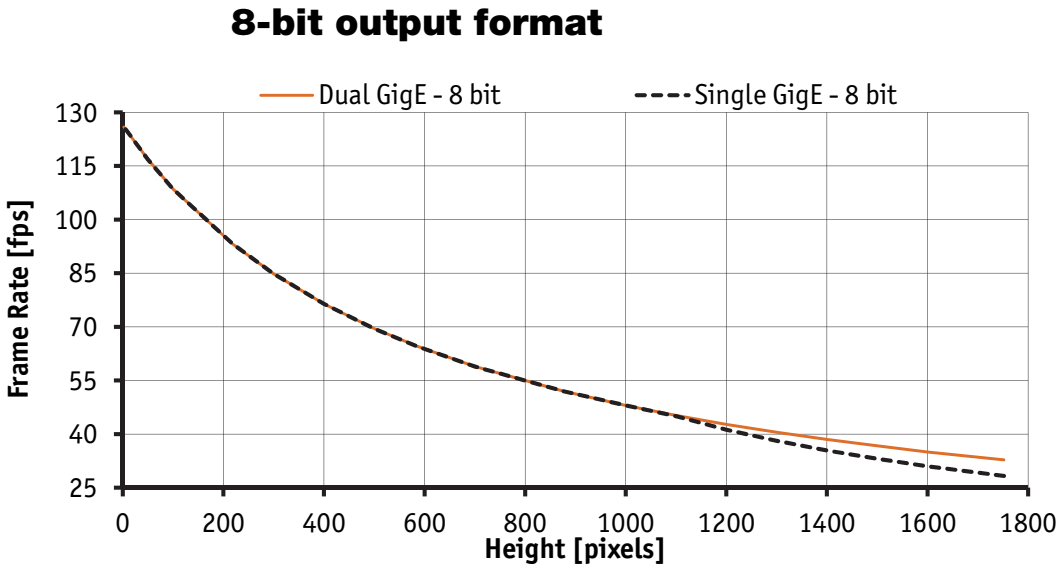


Figure 42: Frame rate vs. height for Prosilica GX2300 - 8 bit pixel format

Height	[1]Width	[2]RegionY	Frame rate single GigE	Frame rate dual GigE
1752	2336	0	28.3	32.8
1600	2336	76	31.0	35.0
1500	2336	126	33.1	36.7
1400	2336	176	35.4	38.5
1300	2336	226	38.1	40.5
1200	2336	276	41.2	42.7
1100	2336	326	45.0	45.2
1000	2336	376	48.0	48.0
876	2336	438	52.0	52.0
700	2336	526	58.9	58.9
584	2336	584	64.6	64.6
500	2336	626	69.5	69.5
400	2336	676	76.4	76.4
300	2336	726	84.8	84.8
218	2336	767	93.2	93.2
100	2336	826	108.5	108.5
50	2336	851	116.8	116.8
10	2336	871	124.4	124.4
2	2336	875	125.9	125.9

[3]BinningY	Height	Width	Frame rate single GigE	Frame rate dual GigE
2	876	2336	56.5	59.3
3	584	2336	81.2	81.2
4	438	2336	99.5	99.5
5	350	2336	115.0	115.0
6	292	2336	128.0	128.0
7	250	2336	139.4	139.4
8	218	2336	148.2	148.2

[1]There is no frame rate increase with reduced width.

[2]For maximum speed advantage **ROIs are taken as center image**, where attribute **RegionY = (full sensor height – ROI height)/2**.

[3]**BinningY** is horizontal row summing on CCD before readout.

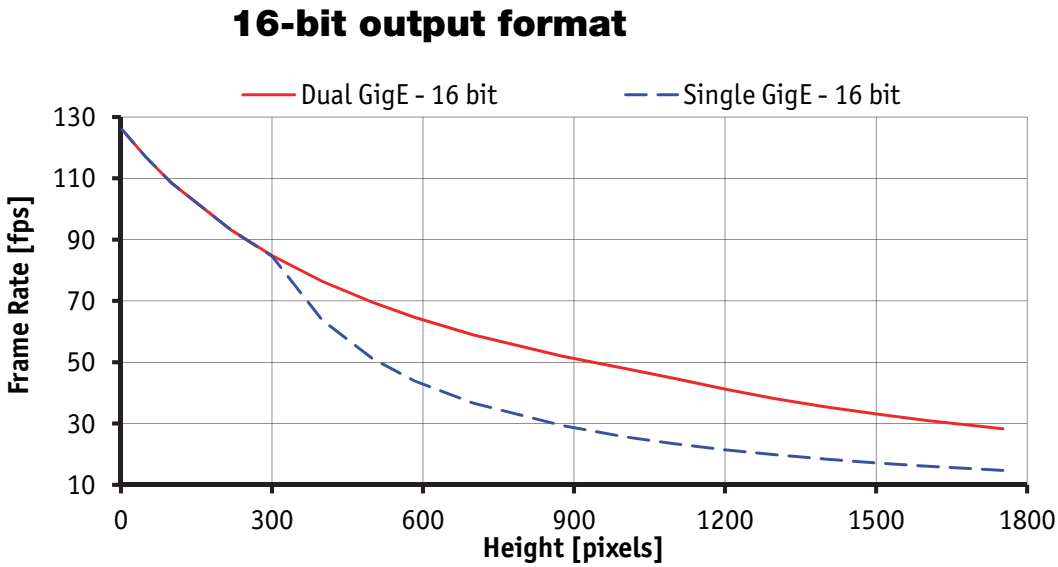


Figure 43: Frame rate vs. height for Prosilica GX2300 - 2 Byte pixel format

Height	[1]Width	[2]RegionY	Frame rate single GigE	Frame rate dual GigE
1752	2336	0	14.7	28.3
1600	2336	76	16.1	31.0
1500	2336	126	17.2	33.1
1400	2336	176	18.4	35.4
1300	2336	226	19.8	38.1
1200	2336	276	21.4	41.2
1100	2336	326	23.4	44.7
1000	2336	376	25.7	48.0
876	2336	438	29.3	52.0
700	2336	526	36.6	58.9
584	2336	584	43.8	64.6
500	2336	626	51.1	69.5
400	2336	676	63.7	76.4
300	2336	726	84.6	84.8
218	2336	767	93.2	93.2
100	2336	826	108.6	108.5
50	2336	851	116.8	116.8
10	2336	871	124.5	124.4
2	2336	875	125.9	125.9

[3]BinningY	Height	Width	Frame rate single GigE	Frame rate dual GigE
2	876	2336	29.3	58.6
3	584	2336	43.8	81.2
4	438	2336	58.3	99.5
5	350	2336	73.0	115.0
6	292	2336	87.2	128.1
7	250	2336	101.5	139.5
8	218	2336	115.8	148.3

[1]There is no frame rate increase with reduced width.

[2]For maximum speed advantage **ROIs are taken as center image**, where attribute **RegionY = (full sensor height – ROI height)/2**.

[3]**BinningY** is horizontal row summing on CCD before readout.

Prosilica GX2750

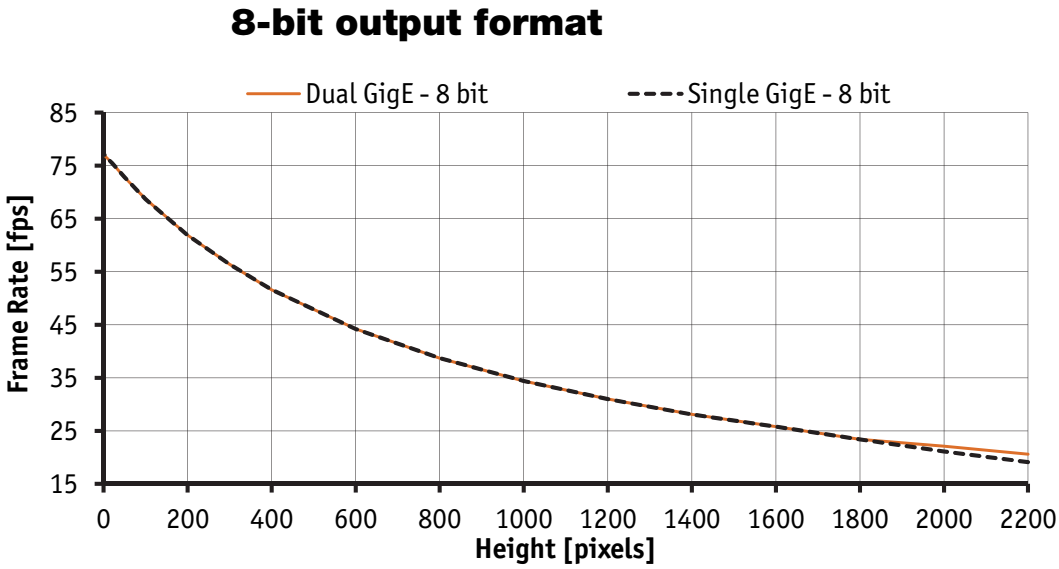


Figure 44: Frame rate vs. height for Prosilica GX2750 - 8 bit pixel format

Height	[1]Width	[2]RegionY	Frame rate single GigE	Frame rate dual GigE
2200	2752	0	19.1	20.6
2000	2752	100	21.1	22.1
1800	2752	200	23.4	23.4
1600	2752	300	25.8	25.8
1400	2752	400	28.1	28.1
1200	2752	500	31.0	31.0
1000	2752	600	34.4	34.4
800	2752	700	38.7	38.7
600	2752	800	44.2	44.2
400	2752	900	51.6	51.6
300	2752	950	56.4	56.4
200	2752	1000	61.9	61.9
100	2752	1050	68.7	68.7
50	2752	1075	72.8	72.8
20	2752	1090	75.5	75.5
10	2752	1095	76.3	76.3
5	2752	1097.5	76.7	76.7
2	2752	1099	77.1	77.1

[3]BinningY	Height	Width	Frame rate single GigE	Frame rate dual GigE
2	1100	2752	36.9	36.9
3	732	2752	50.1	50.1
4	550	2752	60.8	60.8
5	440	2752	69.6	69.6
6	366	2752	77.2	77.2
7	314	2752	83.5	83.5
8	274	2752	88.4	88.4

[1]There is no frame rate increase with reduced width.

[2]For maximum speed advantage **ROIs are taken as center image**, where attribute **RegionY = (full sensor height – ROI height)/2**.

[3]**BinningY** is horizontal row summing on CCD before readout.

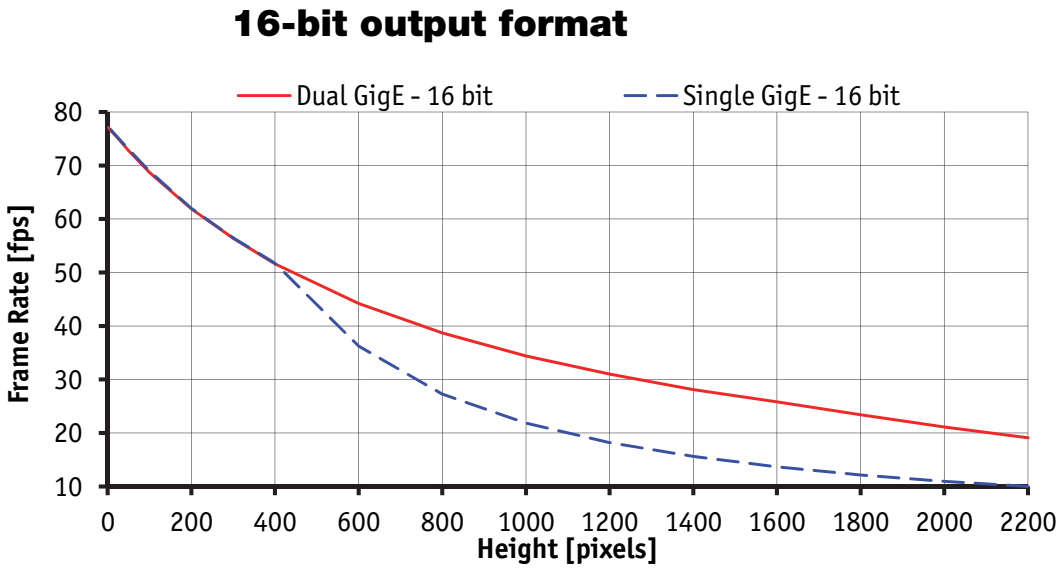


Figure 45: Frame rate vs. height for Prosilica GX2750 - 2 Byte pixel format

Height	[1]Width	[2]RegionY	Frame rate single GigE	Frame rate dual GigE
2200	2752	0	10.0	19.1
2000	2752	100	10.9	21.1
1800	2752	200	12.1	23.4
1600	2752	300	13.7	25.8
1400	2752	400	15.6	28.1
1200	2752	500	18.2	31.0
1000	2752	600	21.8	34.4
800	2752	700	27.3	38.7
600	2752	800	36.3	44.2
400	2752	900	51.7	51.6
300	2752	950	56.5	56.4
200	2752	1000	62.0	61.9
100	2752	1050	68.9	68.7
50	2752	1075	73.0	72.8
20	2752	1090	75.6	75.5
10	2752	1095	76.5	76.3
5	2752	1097.5	76.9	76.7
2	2752	1099	77.3	77.1

[3]BinningY	Height	Width	Frame rate single GigE	Frame rate dual GigE
2	1100	2752	19.9	37.0
3	732	2752	29.8	50.2
4	550	2752	39.6	60.9
5	440	2752	49.4	69.8
6	366	2752	59.3	77.4
7	314	2752	68.9	83.8
8	274	2752	78.8	88.9

[1]There is no frame rate increase with reduced width.

[2]For maximum speed advantage **ROIs are taken as center image**, where attribute **RegionY = (full sensor height – ROI height)/2**.

[3]**BinningY** is horizontal row summing on CCD before readout.

Prosilica GX3300

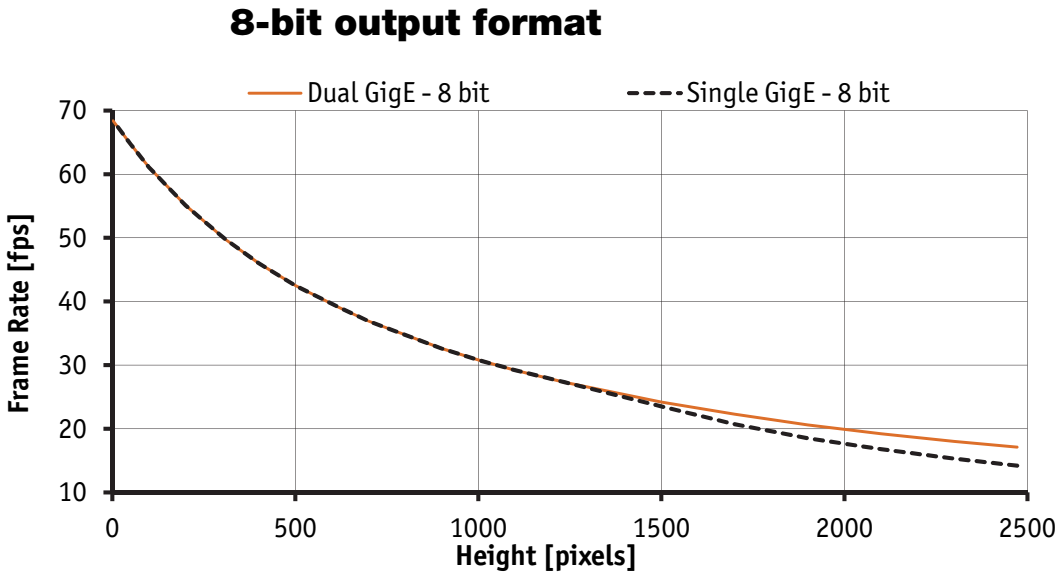


Figure 46: Frame rate vs. height for Prosilica GX3300 - 8 bit pixel format

Height	[1]Width	[2]RegionY	Frame rate single GigE	Frame rate dual GigE
2472	3296	0	14.7	17.1
2300	3296	86	15.8	18.0
2100	3296	186	17.4	19.2
1900	3296	286	19.2	20.6
1700	3296	386	21.5	22.3
1500	3296	486	24.2	24.2
1236	3296	618	27.3	27.3
1100	3296	686	29.2	29.2
1000	3296	736	30.8	30.8
900	3296	786	32.6	32.6
700	3296	886	36.9	36.9
618	3296	927	39.1	39.1
500	3296	986	42.5	42.5
400	3296	1036	46.0	46.0
308	3296	1082	49.8	49.8
200	3296	1136	55.1	55.1
100	3296	1186	61.1	61.1
50	3296	1211	64.7	64.7
2	3296	1235	68.4	68.4

[3]BinningY	Height	Width	Frame rate single GigE	Frame rate dual GigE
2	1236	3296	29.4	31.2
3	824	3296	43.1	43.1
4	618	3296	53.1	53.1
5	494	3296	61.8	61.8
6	412	3296	69.5	69.5
7	352	3296	75.8	75.8
8	308	3296	81.4	81.4

[1]There is no frame rate increase with reduced width.

[2]For maximum speed advantage **ROIs are taken as center image**, where attribute **RegionY = (full sensor height – ROI height)/2**.

[3]**BinningY** is horizontal row summing on CCD before readout.

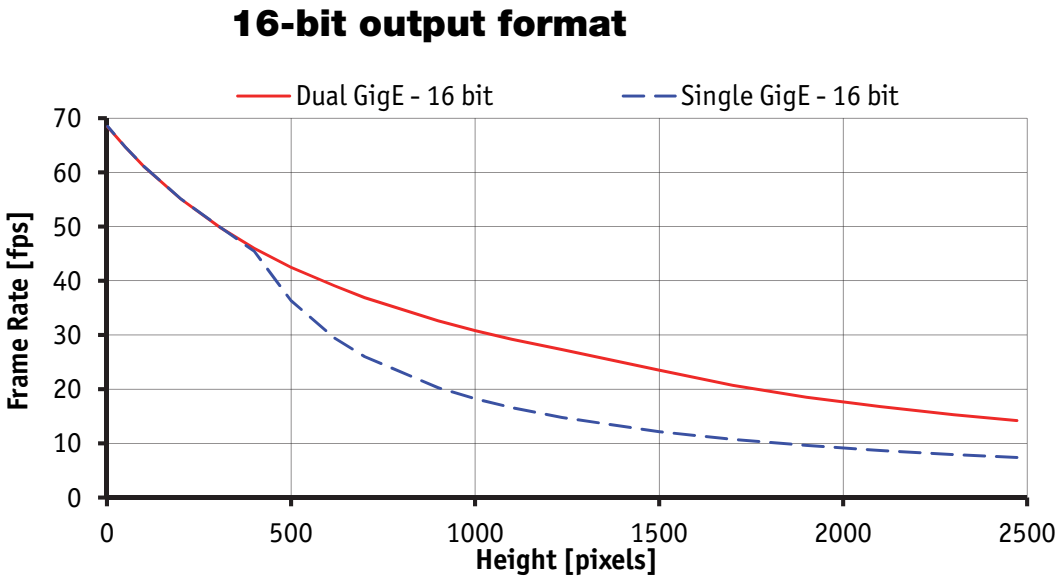


Figure 47: Frame rate vs. height for Prosilica GX3300 - 2 Byte pixel format

Height	[1]Width	[2]RegionY	Frame rate single GigE	Frame rate dual GigE
2472	3296	0	7.4	14.2
2300	3296	86	7.9	15.3
2100	3296	186	8.7	16.8
1900	3296	286	9.6	18.5
1700	3296	386	10.7	20.7
1500	3296	486	12.2	23.5
1236	3296	618	14.8	27.3
1100	3296	686	16.6	29.2
1000	3296	736	18.2	30.8
900	3296	786	20.2	32.6
700	3296	886	26.0	36.9
618	3296	927	29.4	39.1
500	3296	986	36.3	42.5
400	3296	1036	45.4	46.0
308	3296	1082	49.9	49.8
200	3296	1136	55.2	55.1
100	3296	1186	61.2	61.1
50	3296	1211	64.7	64.7
2	3296	1235	68.5	68.4

[3]BinningY	Height	Width	Frame rate single GigE	Frame rate dual GigE
2	1236	3296	14.8	29.5
3	824	3296	22.1	43.1
4	618	3296	29.5	53.2
5	494	3296	36.8	62.0
6	412	3296	44.1	69.5
7	352	3296	51.4	75.8
8	308	3296	58.8	81.4

[1]There is no frame rate increase with reduced width.

[2]For maximum speed advantage **ROIs are taken as center image**, where attribute **RegionY = (full sensor height – ROI height)/2**.

[3]**BinningY** is horizontal row summing on CCD before readout.

Prosilica GX6600

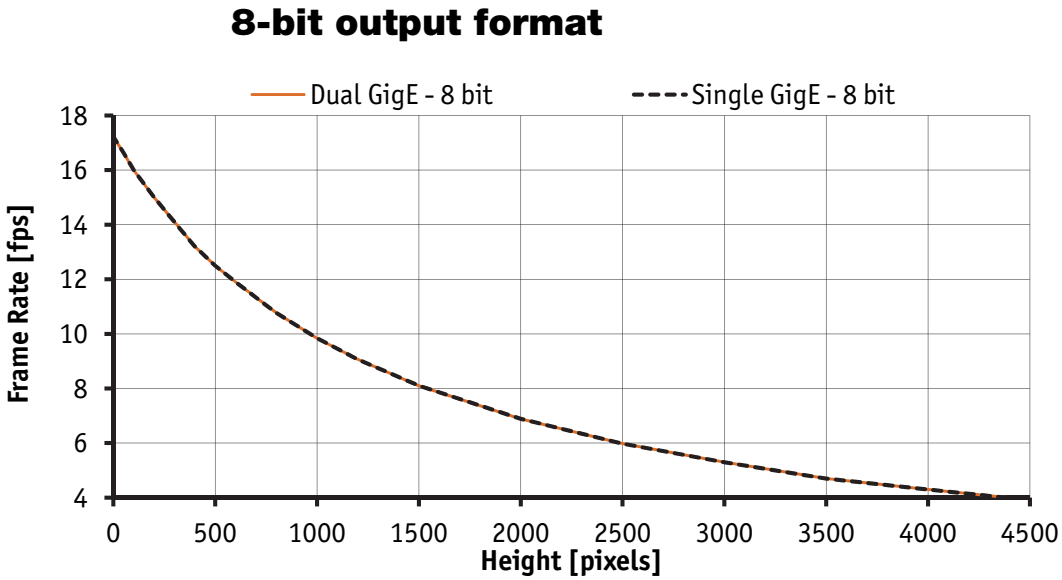


Figure 48: Frame rate vs. height for Prosilica GX6600 - 8 bit pixel format

Height	[1]Width	[2]RegionY	Frame rate single GigE	Frame rate dual GigE
4384	6576	0	4.0	4.0
4000	6576	192	4.3	4.3
3500	6576	442	4.7	4.7
3000	6576	692	5.3	5.3
2500	6576	942	6.0	6.0
2000	6576	1192	6.9	6.9
1500	6576	1442	8.1	8.1
1200	6576	1592	9.1	9.1
1000	6576	1692	9.8	9.8
800	6576	1792	10.8	10.8
600	6576	1892	11.9	11.9
500	6576	1942	12.5	12.5
400	6576	1992	13.2	13.2
300	6576	2042	14.1	14.1
200	6576	2092	15.0	15.0
100	6576	2142	16.0	16.0
50	6576	2167	16.6	16.6
10	6576	2187	17.1	17.1
2	6576	2191	17.2	17.2
1	6576	2191	17.2	17.2

[3]BinningY	Height	Width	Frame rate single GigE	Frame rate dual GigE
2	2192	6576	7.4	7.4
3	1460	6576	10.4	10.4
4	1096	6576	13	13
5	876	6576	15.3	15.3
6	730	6576	17.4	17.4
7	626	6576	19.1	19.1
8	548	6576	20.7	20.7

[1]There is no frame rate increase with reduced width.

[2]For maximum speed advantage **ROIs are taken as center image**, where attribute **RegionY = (full sensor height – ROI height)/2**.

[3]**BinningY** is horizontal row summing on CCD before readout.

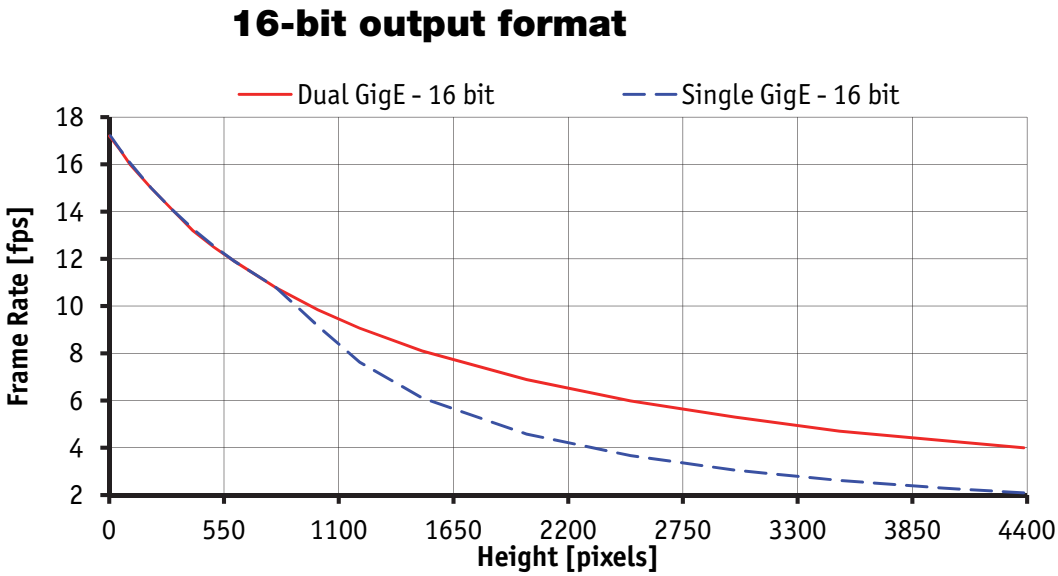


Figure 49: Frame rate vs. height for Prosilica GX6600 - 2 Byte pixel format

Height	[1]Width	[2]RegionY	Frame rate single GigE	Frame rate dual GigE
4384	6576	0	2.1	4.0
4000	6576	192	2.3	4.3
3500	6576	442	2.6	4.7
3000	6576	692	3.1	5.3
2500	6576	942	3.7	6.0
2000	6576	1192	4.6	6.9
1500	6576	1442	6.1	8.1
1200	6576	1592	7.6	9.1
1000	6576	1692	9.2	9.8
800	6576	1792	10.8	10.8
600	6576	1892	11.9	11.9
500	6576	1942	12.5	12.5
400	6576	1992	13.3	13.2
300	6576	2042	14.1	14.1
200	6576	2092	15.0	15.0
100	6576	2142	16.1	16.0
50	6576	2167	16.7	16.6
10	6576	2187	17.2	17.1
2	6576	2191	17.3	17.2
1	6576	2191	17.3	17.2

[3]BinningY	Height	Width	Frame rate single GigE	Frame rate dual GigE
2	2192	6576	4.2	7.5
3	1460	6576	6.3	10.4
4	1096	6576	8.4	13.0
5	876	6576	10.4	15.3
6	730	6576	12.5	17.4
7	626	6576	14.6	19.2
8	548	6576	16.7	20.8

[1]There is no frame rate increase with reduced width.

[2]For maximum speed advantage **ROIs are taken as center image**, where attribute **RegionY = (full sensor height – ROI height)/2**.

[3]**BinningY** is horizontal row summing on CCD before readout.

Prosilica GX model comparison

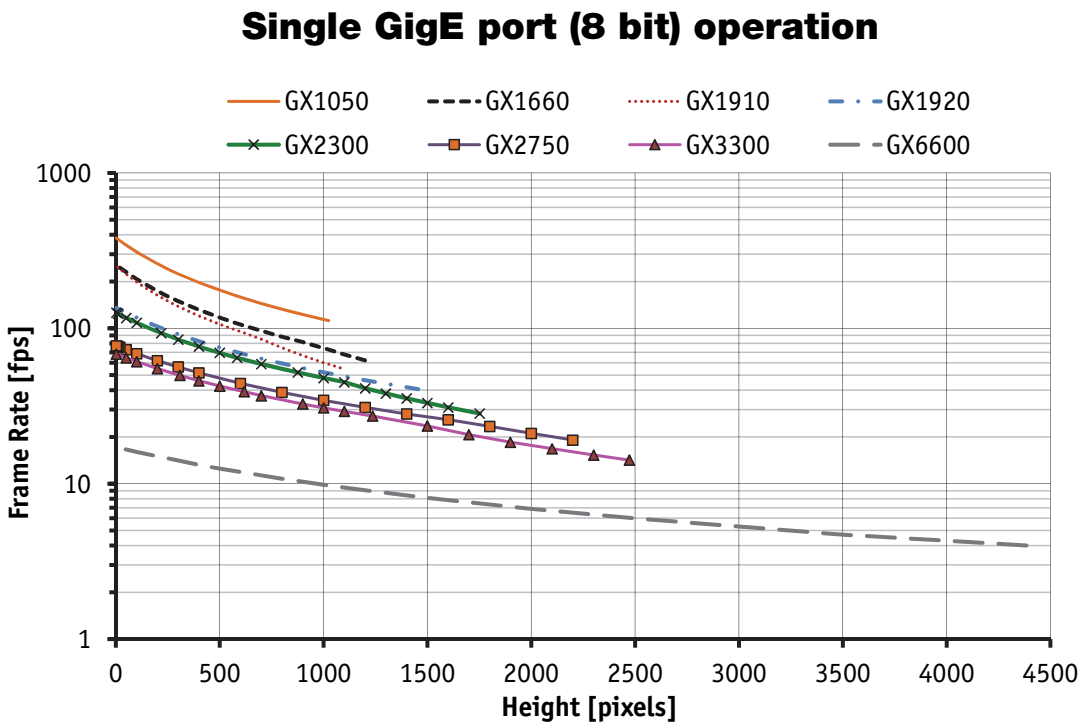


Figure 50: Maximum frame rate vs. height for all Prosilica GX cameras using single Ethernet port

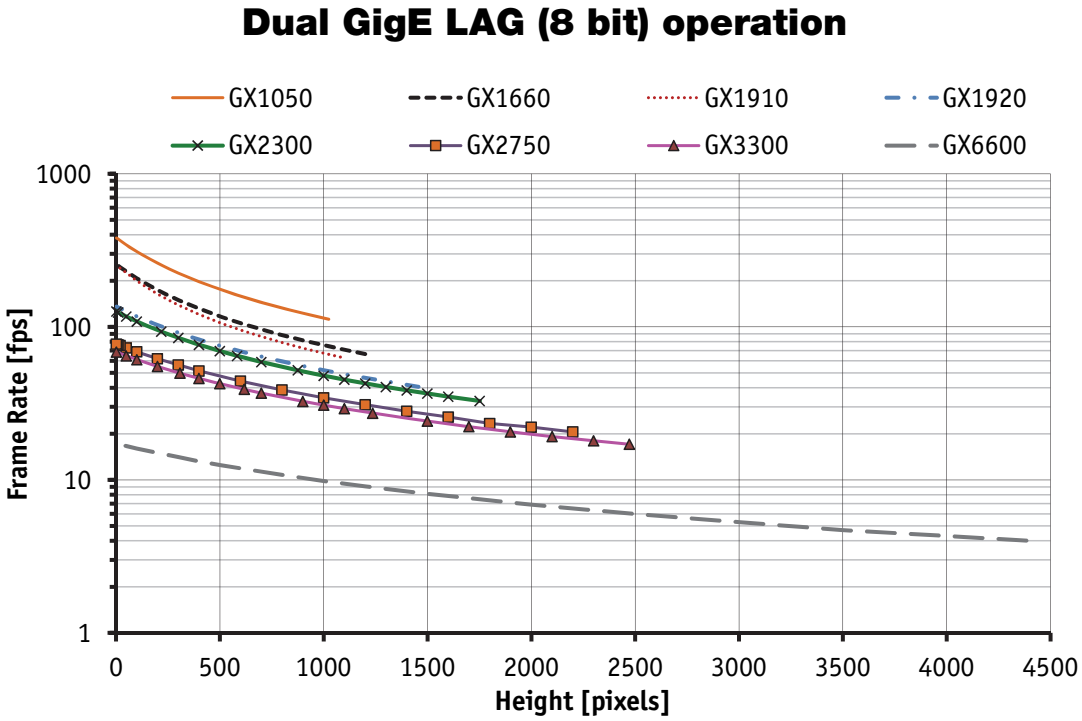


Figure 51: Maximum frame rate vs. height for all Prosilica GX cameras using two Ethernet ports

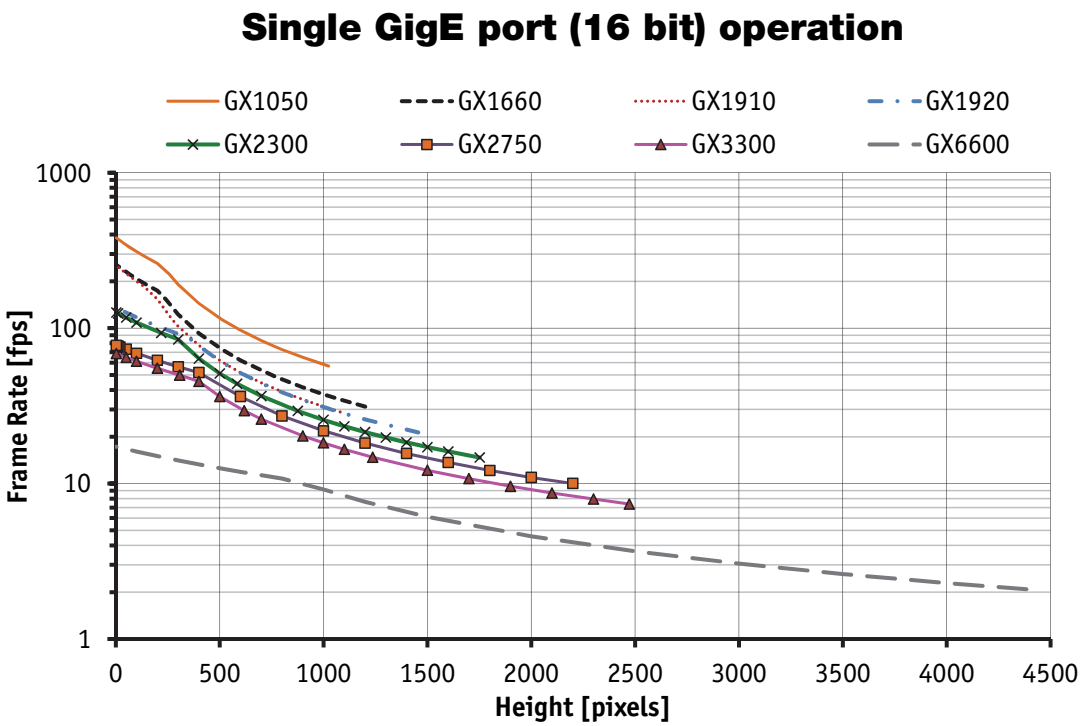


Figure 52: Maximum frame rate vs. height for all Prosilica GX cameras using single Ethernet port - 2 Byte pixel format

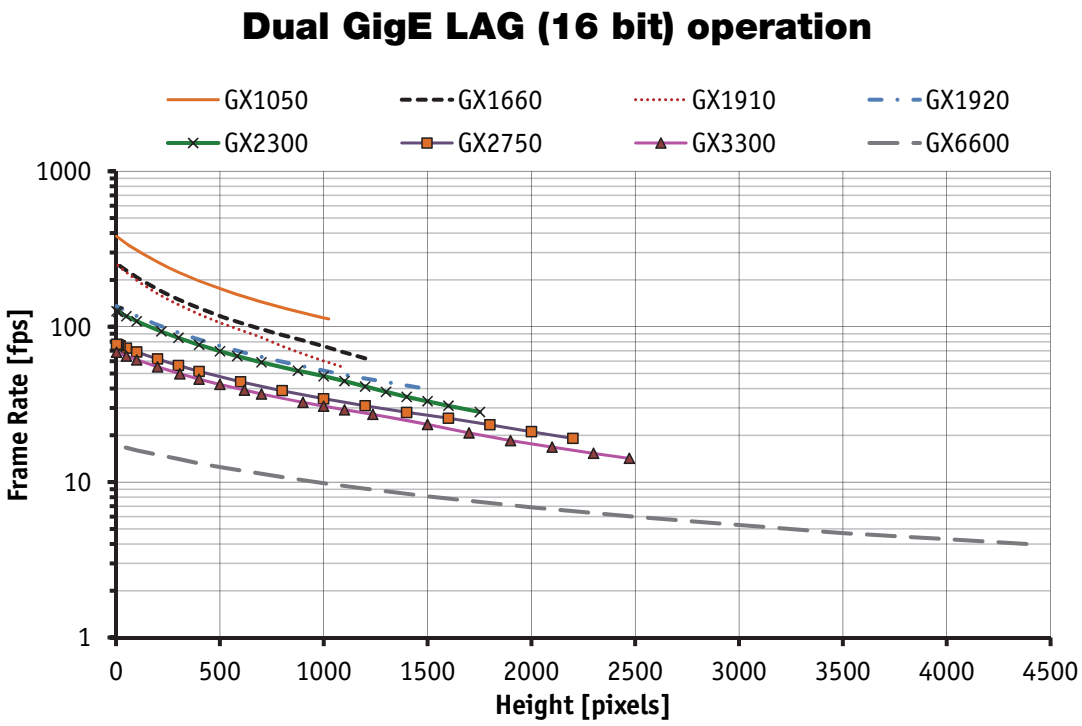
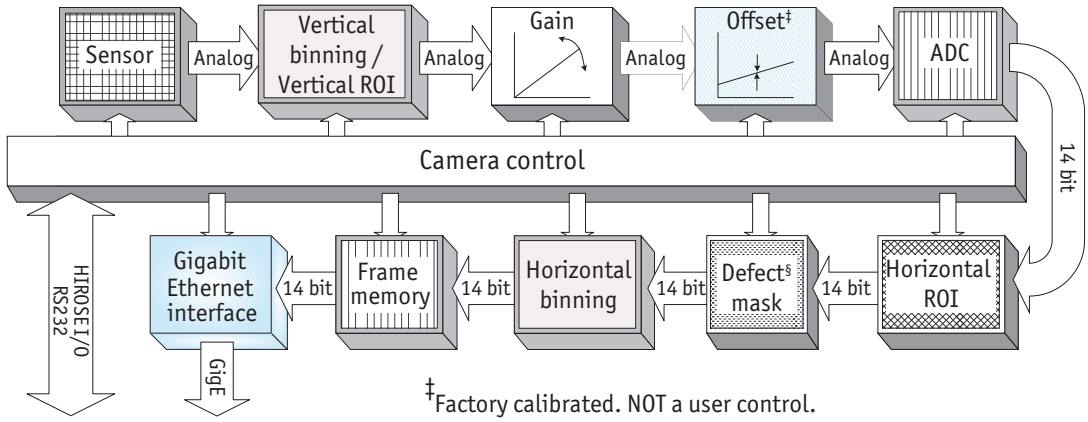


Figure 53: Maximum frame rate vs. height for all Prosilica GX cameras using two Ethernet ports - 2 Byte pixel format

Description of the data path

The following diagrams illustrate the data flow and the bit resolution of image data. The individual blocks are described in more detail in the **GigE Features Reference** document.

Prosilica GX: monochrome cameras

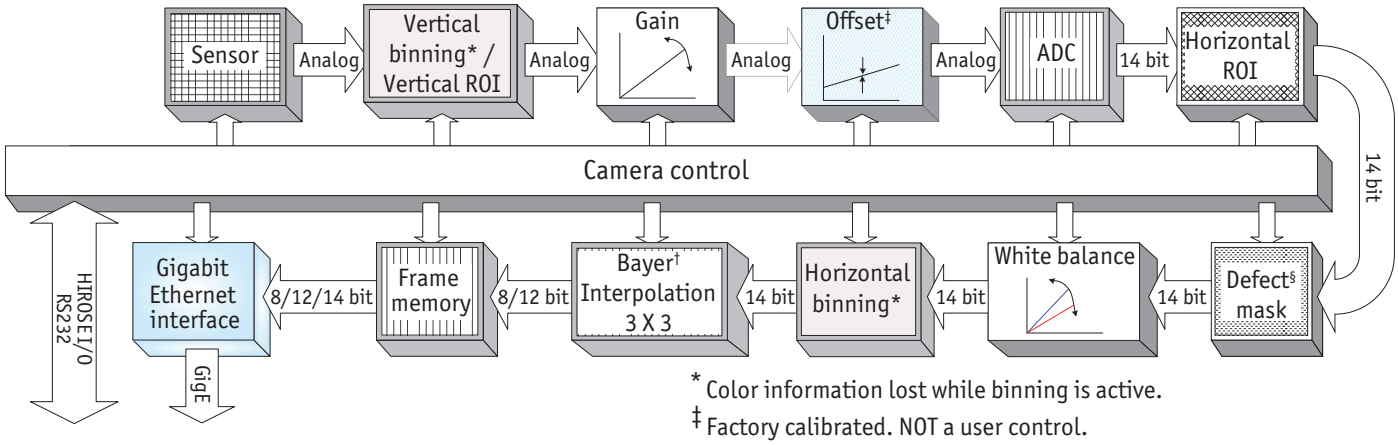


‡Factory calibrated. NOT a user control.

§Defect masking is not available for GX1050, GX1660, and GX1910

Figure 54: Block diagram of Prosilica GX monochrome cameras

Prosilica GX: color cameras



* Color information lost while binning is active.

‡ Factory calibrated. NOT a user control.

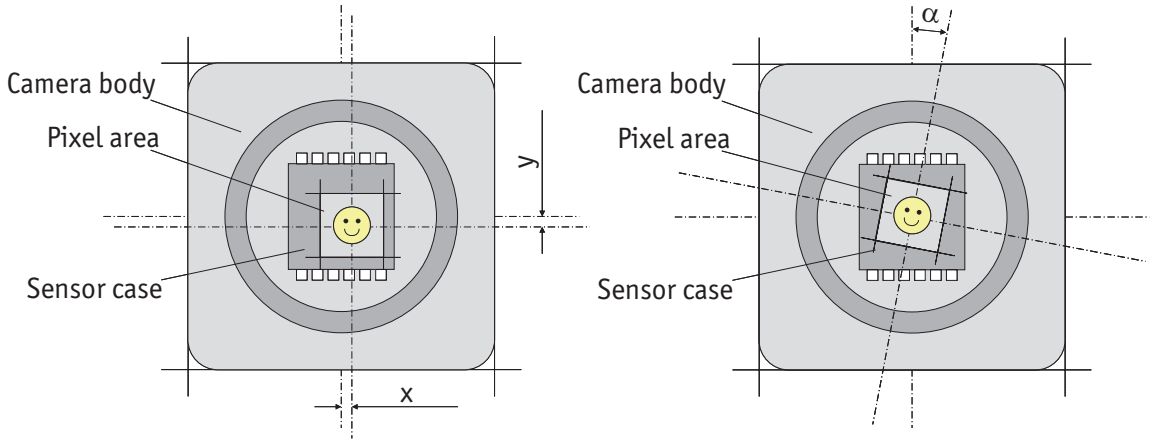
§ Defect masking is not available for GX1050C, GX1660C, and GX1910C

† For on-camera interpolated *PixelFormats* only—outputs 8 bit.
On-camera interpolated *PixelFormat*, ***RGB12Packed***—outputs 12 bit.
Raw un-interpolated *PixelFormats* skip this block—outputs 8/12 bit depending upon the bit depth of *PixelFormat* used.

Figure 55: Block diagram of Prosilica GX color cameras

Appendix

Sensor position accuracy of Prosilica GX



Method of Positioning:	Optical alignment of photo sensitive sensor area into camera front module. (lens mount front flange)		
Reference points:	Sensor: Center of pixel area (photo sensitive cells) Camera: Center of camera front flange (outer case edges)		
Accuracy:	x/y	±250 µm	(Sensor shift)
	α	< 1°	(Sensor rotation)

Additional references

Prosilica GX webpage

http://www.alliedvision.com/en/products/cameras

Prosilica GX Documentation

http://www.alliedvision.com/en/support/technical-documentation/prosilica-gx-documentation

VIMBA SDK

http://www.alliedvision.com/en/products/software

PvAPI SDK- (Under Legacy Software)

http://www.alliedvision.com/en/support/software-downloads

Knowledge base

http://www.alliedvision.com/en/support/technical-papers-knowledge-base

Case studies

http://www.alliedvision.com/en/applications

Firmware

http://www.alliedvision.com/en/support/firmware

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